



The Dog That Didn't Bark

When banking crises did not occur and what we can learn from that

Thomas Lines

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Summary

Just as we need to know when banking crises occurred and why, it is also useful to know when they did not – and why not. It happens that none of any significance occurred in the first 28 years after the Second World War, uniquely in the history of capitalism. What was being done right?

Since the 1970s the UK has ridden a merry-go-round of changes in its system of bank regulation. Regulations have been regularised internationally at the Bank for International Settlements (BIS) in Basel. However, these changes did not prevent further bank failures. On the other hand, throughout the era when there were no failures there was in Britain no formal prudential regulation. This suggests that the avoidance of bank crises is not caused by this sort of regulation.

Banking, or the context in which it operated, was then different in at least 14 respects. They rendered banking safer than it is now. For example, the clearing banks operated a cartel; the building societies, which monopolised mortgage lending, formed another cartel. It was emphatically **not** a highly competitive system.

Banks also did not lend to other banks. The growth of interbank lending has altered the banking system fundamentally, as was recognised by experts during the 1980s, including the BIS itself.

Northern Rock, the first bank to fail during the 2007-08 crisis, did so not because depositors queued up to withdraw their money but because six weeks earlier other banks had stopped lending to it, and so the funding for its

own lending dried up: it relied on short-term interbank loans for over 70 per cent of that funding. That degree of dependency would have been unacceptable to bankers in any previous era. The wholesale markets of the early 21st century are further complicated by financial derivatives, much of the trade in which takes place between banks. A year after Northern Rock, the failure of Lehman Brothers – a New York investment bank with large derivatives positions – occurred in the same way.

It is this danger to the wider economy that now makes governments bail out failed banks, as they never did when banks had to rely on their own deposits. Interbank lending is one of the main reasons for banks' political power.

Ecological theory suggests that a system will be most resilient when it is divided into compartments to protect it from external dangers. The banking system should be set up in this modular way too, without financial interconnectedness between banks. For this reason we propose severe restrictions on interbank lending and derivatives trading, and a reintroduction of exchange controls designed, among other things, to sharply reduce international flows of money between banks. A retail bank's loan assets should never be allowed to exceed its deposits.

These are three out of 13 specific reforms that we propose. Other leading ones are that new rules should be as simple and clearcut as possible, the assumption that competition makes banking safer needs to be abandoned, and a bank's social responsibility to its depositors should be recognised as more important than its fiduciary duty to external shareholders.



Not barking in the night

In one of Sherlock Holmes' cases a vital clue lay in the fact that a dog did not bark in the night. So it is with banking crises. Just as we need to know when they occurred and why, it is just as useful to know when they did not – and why not. But although evidence of that is ready to hand, it barely seems to have been considered since the banking crash in 2008.

Early that year, the US economists Carmen Reinhart and Kenneth Rogoff published a paper which compared 'the eighteen bank-centered financial crises from the post-War period' in developed capitalist countries, i.e. from 1945 to date.¹ However, the first of these crises was not until 1974: none of any significance occurred anywhere in the first 28 years after the Second World War. That is a remarkable fact and it makes the period unique in the history of capitalism. Should it not have sent researchers scurrying to the archives of the 1950s and 1960s to see which policies or banking practices of that time turned out to be particularly favourable to stability in the banking sector? One might have thought so. But if any did so, their findings were not widely discussed and news of it did not reach Green House.

In a rare example of such thinking, the veteran Oxford economist, Peter Oppenheimer, wrote this letter to the Financial Times at the height of the crisis in 2008:

'Sir, The reconstruction of private banking ... needs to be not just piecemeal but based on a key overarching insight. This was furnished nearly a century and a half ago by Walter Bagehot. It is that the

*optimum market structure for banking is one of very limited competition. For Britain this means turning the clock back 40 years, to a system in which, among other things, household mortgage business is strictly segmented from commercial banking and all banks are forbidden to finance more than a tiny percentage of their assets by way of inter-bank borrowing. Even before the current crisis, the competitive banking regime initiated in 1971 had to a first approximation brought zero gain in economic well-being to the public at large.'*²

This paper makes a further attempt to address that deficiency. After the publication of the Vickers Commission's recommendations for new policies for British banking, we consider what scope such policies ought to have. In general, what policies would truly prevent a recurrence of the bank crises which impeded economic activity in the 19th century, the 1930s and again periodically since 1974 – but not between 1945 and 1973? What was being done right in that era? If we are serious about avoiding a repeat of the 2008 crisis, surely one of the first tasks is to investigate what in the conditions of that period led to this unusual outcome.



Why didn't the dog bark?

What was different about banking, or the context in which it operated, in the post-war period? Fourteen important differences from today are listed below; the list is wide-ranging but it is not exhaustive.

1. 'Intermediation' between depositors and borrowers by the banks was the main way of providing credit to business. In more recent decades large corporations have increasingly used the capital markets to raise money directly themselves, rather than tapping the banks' resources for funds. Since the financial crisis this has gone further as some firms – not all of them large – have been taking loans from hedge funds and other 'non-banks'.
2. The small number of 'clearing banks', which dominated the British system, operated a cartel to fix interest rates on deposits, loans and overdrafts. It was emphatically **not** a highly competitive system. For example, in the late 1960s the clearing banks paid interest on deposit accounts at a uniform rate 2 per cent below the Bank of England's Bank Rate.³
3. The main tools of bank regulation were the ratios of cash (at 8 per cent in the late 1960s) and liquidity (at 28 per cent) to deposits; the adequacy of banks' capital was not even discussed. However, the former ratios were regarded as monetary regulations, not 'prudential' ones aiming at the safety and stability of the system.
4. In general, banks did not lend to other banks. Outside the US, and especially in domestic banking, there was almost no 'wholesale' market in money from which banks could fund the advances of loans and overdrafts that they made. Instead the banks extended advances on the basis of the deposits that they attracted. (In the 'overnight' money market of the day, it was the Bank of England which met banks' daily needs to place immediate surpluses or cover deficits, using specialist 'discount houses' as intermediaries.)
5. There was a longstanding tradition of caution in all bank activities. In the words of a commentator in the 1980s: *'Traditional banking markets fostered confidence by extreme caution in trading, by developing stable and intimate client-banker relations, by severely restricting the amount of competition and innovation, and by exercising close social controls over those who traded.'*⁴ This caution was imbued during a banker's training, with the awareness that the deposits used to fund the bank's loans were other people's money and therefore had to be treated with circumspection.
6. There were strict international controls on capital movements, known at the time as exchange controls. These greatly reduced the ability of financiers to destabilise national economies with flows of 'hot' money into and out of their financial sectors – therefore leaving those financiers with much less power than they later acquired. If used properly, exchange controls also made it impossible for banks to indulge in so-called 'regulatory



arbitrage' (playing off one country's regulations against another's).

7. Exchange rates were fixed under the system agreed at Bretton Woods in 1944 until soon after President Nixon abandoned the fixed value of the US dollar against gold in 1971.

8. There were no financial derivatives.

9. Residential mortgages were lent not by banks but by the mutually owned building societies, organised in a cartel of their own. They regulated the lending cycle by the use of queues when demand was high, making applicants wait, sometimes for months at a time, before they could receive a mortgage. There was also a large, subsidised council housing sector, which provided many people with comfortable homes for life so that home ownership was not universally required.

10. There were strict limits on consumer credit: tight regulation did apply here and it was constantly monitored by the government, as one of the main tools for controlling the money supply and regulating effective demand in the economy. Most consumer credit was made by hire purchase companies and other 'non-bank' organisations. (Credit cards first appeared in the late 1960s.)

11. There was a clear separation of retail and merchant banks, and of merchant banking from other functions of the City of London such as the stock market, the commodity markets and the discount houses on the money

market. There was no 'proprietary' trading on these markets by clearing banks on their own account.

12. Until the 1960s the City was a purely British financial centre, with its own peculiar habits and customs. Its senior staff, recruited from a narrow section of British society, could be easily inculcated in the informal codes by which it operated.

13. Banks assessed for themselves the creditworthiness of every applicant for credit, without relying on external rating agencies to do the job for them. Nor did they use impersonal computer programs for the task: it generally depended on the personal judgment of local managers, using as close a knowledge as possible of the applicant, their history and potential.

14. Banks possessed hidden reserves, not declared in their accounts, which acted as an extra shield against loan losses and the risk of failure if the worst should come to the worst.

None of this has applied for many years now, but most if not all of these 14 features rendered banking safer than it is now, on its own account, on behalf of the banks' depositors and for the wider economy.

In part, the liberalisation of the banks since that time was a response to the weakening of their traditional role, as described in the first item in the list. Instead of allowing the banks to decline in size and number, as would befit a world of 'disintermediation', the authorities let them take on extra tasks and behave in ways which were



not permitted before. In hindsight, this can be seen to be a very serious and dangerous mistake. Under the process of financial liberalisation international movements of capital were freed up; interbank transactions came to be regarded as normal, with proprietary trading adding to them a large extra layer on top of money market operations; banks took over stockbroking firms, commodity traders and other businesses which had nothing to do with the transfer or lending of money; and the derivatives markets were developed as a source of extra profits. This process was further encouraged by an erroneous inference drawn from the 1980s International Debt Crisis, that the banks were insufficiently profitable and should therefore become more attentive to their shareholders' desires (for short-term profits) than those of their depositors (for security). This engendered a new eagerness to take risks, the baleful consequences of which appeared 20 years later.

Now, we do not suggest that the British banking system of that earlier period represented some kind of ideal type that needs to be restored. It had many faults, including over-concentration, an excessive orientation towards the outside world and neglect of British businesses' needs. Its domination by a small, clubby élite drawn from a narrow social background may have helped to enforce the common standards on which the system depended, and maintain an easy relationship with the Bank of England, but it was also part of the restrictive class basis of British society.

Nor in this paper can we explore all 14 items on the list. We will concentrate on the most central and 'systemic' of

them rather than those that relate primarily to a bank's own business. This includes the limited competition that existed between banks, and the relationship between competition, monetary regulation and the current debate about prudential regulation. After that we will discuss the development of interbank lending, the growth of which has altered the system of banking fundamentally. It was central to the financial crisis of 2007-08, and yet its implications have been underplayed in the recent debate about bank regulation, even though severe warnings were made about it as early as the 1980s. Then we will discuss the position of 'investment' banks and the derivatives markets. But first of all we will outline the nature of bank regulation in the two periods, 1945-79 and 1979-2008.



Barking up the wrong trees

Despite the lack of curiosity about what has actually prevented banking crashes, the UK has since the 1970s ridden a merry-go-round of changes in its system of prudential regulation of banks. This system aims to ensure that banks lend no more than they can afford, that they monitor their clients properly to avoid bad debts, and that if any bank should fail this should not seriously harm its personal depositors or destabilise the rest of the economy. The danger arises from the banks' ability to create money through credit, allied with the problem of 'maturity transformation': the fact that a bank's advances of loans and overdrafts tend to be of longer term, and less easily taken back in, than either the deposits placed with it or the short-term loans that it takes from the wholesale market.

The changes in British regulatory systems were enacted in the Banking Acts of 1979 and 1987 and the Financial Services and Markets Act of 2000. The present government is following up the Conservatives' election pledge to return the regulation of individual banks from the Financial Services Authority (FSA) to the Bank of England, the Bank's earlier failures in this field notwithstanding. Under the tripartite arrangement with the FSA and the Treasury which was introduced in 2000, the Bank had been stripped of this power but it retained responsibility for wider financial stability. The depth of the crisis of 2008 also prompted the new government to set up the Vickers Commission to investigate broader questions of banking as well as these ones.

However, these repeated changes in structure did not prevent further bank failures from occurring: the

'Secondary Banking' crisis of 1974 was followed by the failures of Johnson Matthey Bankers in 1984 (which served to discredit the 1979 Act), the Bank of Credit and Commerce International in 1991, Barings in 1995 and then the series of collapses in 2007-08.

Regulations have been regularised internationally in successive agreements between countries at the Bank for International Settlements (BIS), the central banks' association in Basel, Switzerland. Since 1988 these have been based on the principle of capital adequacy, a basic feature of prudential regulation in many Continental countries in the past, but not important in the UK before then. With adequate capital it is expected that, if a bank should find it impossible to recover payment on certain loans, its own resources must be sufficient to make good the gap on its balance sheet.⁵ In 2004 a 'Basel II' agreement was reached, which varied the capital requirements according to the composition of a bank's lending and allowed the banks to use some of their own risk management tools to assess them. However, while useful as one regulatory tool among several, capital adequacy only aims to save a bank from failing should a crisis occur; it does nothing to prevent that crisis in the first place. A third Basel agreement is now under discussion, in the wake of the evident failure of these measures in 2008.

On the other hand, in 1987 a leading expert on bank regulation wrote, '*There has never been a strong tradition [in the UK] of legislative or interventionist regulation or a comprehensive legal framework governing the regulation of financial institutions.*'⁶ If that was true then, it



did not remain so for much longer. However, it did apply to the years after 1945 in which there were no banking crises. Two other experts concurred: *'Under the traditional system' (before the 1979 Banking Act) 'it was assumed that the clearing and old-fashioned merchant banks did their own prudential regulation.'*⁷ It was also reported that any form of direct control over their affairs by the authorities was *'anathema to British bankers'*.⁸ Controls of a sort did creep in during the 1960s, in the forms of credit ceilings and compulsory 'special deposits' with the Bank of England; but these were considered as part of monetary policy, not prudential regulation.

Now, the 1979 Act was passed because that informal, very lightly regulated system did not prove equal to the strains of the 1970s. However, those methods had managed to survive throughout the 1950s and 1960s. The use since 1979 of 'legislative or interventionist regulation or a comprehensive legal framework', aimed primarily at individual banks' prudential controls, did not prevent the recurrence of bank failures and crises in later years.

Controls on the dogfight

Many parts of commercial banks' operations are of necessity standardised. The banks facilitate transfers of money through the economy, as well as taking deposits and lending money, and this requires a network that needs to be run in a uniform manner like a telephone system. It is not for nothing that this is sometimes called a 'utility' function. Banking has been described as 'institutionally monopolist, regardless of how many corporate entities make up the industry.'⁹ It might be considered a natural monopoly, like the telephones, railways and electricity supply. That is why, like those services, large parts of banking have at times been state-owned in many countries as a matter of policy (as distinct from the accidental origin of current state ownership in the UK).

Now, it could be dangerous if those running any such network were to compete too vigorously. At what point in the banking process can they safely do so? They can set up elaborate competitive pricing schemes, as the telephone and electricity companies do, but these are of limited benefit to clients overall. They can compete in peripheral tasks such as investment advice. But experience shows that competition in core banking services, such as savings and deposit rates and the terms on which mortgages are lent, carries its own risks. Banks can try to gain profit by gouging customers, for example by maximising the spreads between borrowing and lending rates (as they are doing now in the attempt to rebuild profits after the crash), or alternatively gain market share by offering terms which are **excessively** attractive for customers and put the banks themselves at risk, for example



in Northern Rock's practice before it crashed in 2007 of offering the highest deposit rates alongside the most generous terms on its mortgages.

The first of these options leads to excessive margins for the banks and the second to insufficient margins, but both are the consequences of competition. In general a high level of competitiveness, among participants who are nevertheless wont to follow the herd in trading large amounts of money, tends to make financial markets pro-cyclical and unstable. That is greatly magnified when that money can be transferred at will across international frontiers.

The mortgage market provides a good example. In the past, the occasional existence of queues frustrated applicants for building society mortgages; but this was much safer for the wider economy than the modern, competitive methods of extending steadily larger mortgages as a proportion of house prices, and offering larger income multiples as a property boom gathers pace. This has exaggerated the price surges in both of the booms since British banks entered the mortgage market in the 1980s; and then overdone the cutbacks to more 'responsible' lending after those booms ended. The competitive pressures led lenders to act pro-cyclically, exaggerating the boom-and-bust character of an inherently cyclical market. On the other hand, the non-competitive behaviour of the building societies' cartel acted counter-cyclically by deliberately dampening the price cycle, leading to more responsible results.

Between the 1940s and the 1960s the utility character of the banks appears to have been well understood and the

creation of credit by them was regulated as part of the process of managing the mixed economy of the time. Controls on bank lending were part of monetary policy, which at that time meant the regulation of flows of credit to the economy, not the manipulation of total money supply by interest rates alone.¹⁰ With the reliance solely on interest rates has come an uncontrolled expansion in bank credit. These 'stop-go' financial policies came under criticism in the 1960s and 1970s, but they helped to avoid the sharp fluctuations in interest rates which we have seen since that time – including both the highest and the lowest in the 300-year history of the Bank of England.

The former methods of regulation helped to make the banks even safer than did the general framework of banking, but their purpose was for monetary, not prudential, control. In this constrained setting for lending, prudential regulation may have seemed hardly necessary; in any case, British banks largely did it for themselves as part of the management of their own balance sheets, with only informal guidance from the Bank of England. It was seen to be part of the professional duty of bankers, and the whole atmosphere of the time was favourable to it. It is very regrettable that bank directors recently came to neglect it.¹¹

The banks' ability to create credit was also constrained by the fixed exchange rates of the post-war Bretton Woods currency system. The Gold Standard of the Victorian era had limited monetary creation because only a fixed amount of gold can be made available, and so if a country tried to create too much 'fiat' money, it led to inflation. Prices fluctuated in that era around more or less the same level, going up



in a boom and down in a slump. In 1971, under inflationary pressure from the Vietnam War, President Nixon abandoned the fixed price of gold against the US dollar which had underpinned Bretton Woods. After that there was a continuous growth in credit, which has lacked formal constraints in Britain since the Thatcher government's reforms in the 1980s, successive prudential regimes notwithstanding; and this has been accompanied by waves of inflation, affecting consumer prices in the 1970s and prices of property and financial assets since the 1980s. This was exacerbated by the loss of boundaries between different parts of the banking and financial sectors in the 'Big Bang' reform of the stock market in 1986 and other liberalising measures.

In the House of Commons, the former Conservative Prime Minister, Edward Heath, once derided Mrs Thatcher's chancellor, Nigel Lawson, for being like a golfer who had only one club in his bag (the interest rate), and none of the other controls on bank activities which had provided for a more variegated monetary policy in Mr Heath's day.¹² Yet curiously, the Thatcher revolution was made in the name of 'sound money'.

The conventional instruments of prudential regulation, including liquidity and capital ratios, capital limits on individual loans, provisions against bad loans and deposit insurance, all serve a useful purpose. However, in recent times just one of them, the capital adequacy ratio, has become dominant, but history suggests to us that the ratio of a bank's assets (its outstanding advances of loans and overdrafts) to its **deposits** is actually more useful in preventing trouble. The conventional regulations also include

no consideration of the wider context in which banking operates, or the internal business culture of banks.



Don't share the doggie bowls

Lessons can also be learnt from the International Debt Crisis of the 1980s, when the banking system faced a serious threat for the first time since the 1930s, due to the failure of loans extended in the late 1970s to countries in the developing world and some of Central Europe (Hungary, Poland and Yugoslavia). For a period around 1982-84, the existential threat perceived by many bankers and banking authorities was almost as strong as it became in late 2008. However, there was still a recent memory of the banking system as it had existed before the processes of financial liberalisation and globalisation which were under way at the time; by now that memory has faded, and therefore the debate on banking regulation since 2008 has been largely built on the framework that accompanied liberalisation. The collective memory of the previous era has either been lost or, if it remains, become so distorted as to make many commentators consider that there is nothing worth learning from it.

However, nobody who read the literature on banking regulation at the time of the International Debt Crisis should have been surprised by the crash of 2008 or the seizing up of interbank markets which preceded it in August 2007 (the 'credit crunch'). Events like these were explicitly foreseen in the literature about regulation during that earlier crisis, and in the light of the comments made then we can only wonder that these events did not occur much sooner than they did.

Since 2008 it has been commonplace to rail against banks that are 'too big to

fail', but Martin Wolf (a member of the Vickers Commission) went further and wrote, *'The big banks are deemed too big, too interconnected and too important to fail.'*¹³ There have been recent proposals to stop the banks from being too big by breaking them up into smaller units, and Green House supports this. In the 1980s the **interconnectedness** of modern banks was also discussed widely by banking experts, and in a tone that sometimes came close to alarm. In 1987 the Financial Times quoted a warning from the BIS itself that the interbank market's *'potential for transmitting destabilising influences across the world should not be underestimated'*.¹⁴ This is precisely what happened 20 years later (and indeed at various times in between, for example in the East Asian crisis of 1997), and in much the same way as was foreseen.

Interconnectedness arises from the growing tendency since financial liberalisation for banks to borrow short-term loans from other banks or financial institutions in order to finance their mainstream lending as well as other activities, rather than relying on their customers' deposits. This is another consequence of encouraging competition. Interconnectedness has also come to entail the exchange of derivatives, for example the sale by one bank to another of a bundle of mortgage loans in a 'structured investment vehicle' (SIV) – uncertainty in the value of which triggered off the credit crunch of 2007 and the deeper crisis which followed. Historically, British banks were always reluctant to seem dependent on another banker,¹⁵ but that was already changing by the end of the 1960s, when loans to other UK banks for periods of up to one month were described in one textbook as of



growing significance.¹⁶ This had long been the practice in the US, where banks in one state would lend to those in others as a consequence of a federal rule that no bank could possess branches in more than one state. As an international practice it spread to London during the 1960s with the growth of the Eurocurrency markets, which were established for the purpose of trading in US dollar loans outside the United States. By March 1987 BIS statistics indicated that interbank lending worldwide amounted to US\$2,188 billion, which was described at the time as a ‘staggering total’.¹⁷

An uncharitable way to describe interbank lending would be as lazy banking, since the wholesale markets make it possible to build up a bank’s assets without the hard work of developing a customer deposit base. Reliance on short-term interbank loans turns any bank’s financial management back-to-front. The traditional concern was with asset management, to ensure that a bank did not lend and invest more than the funds made available by depositors. With wholesale funding came the opposite possibility of ‘liability management’: ensuring enough funding is acquired (a liability on the balance sheet because it has to be paid back) to cover all the assets the bank creates. As a lazy procedure this may be compared with another import from the US since financial liberalisation, that of banks relying on credit rating agencies to assess the creditworthiness of major borrowers rather than doing the task for themselves.

The biggest risk arising from interbank lending (and the resulting ‘funding exposure’ in a failure of liability management) is that when other banks or money-market lenders lose

confidence in a bank, this can create a run on the bank which is just as severe and even more sudden than any clamour from depositors to withdraw their money. As with a depositors’ run on a bank, the source of danger lies in the problem of maturity transformation, which is exacerbated by the very short-term nature of most interbank loans. If either depositors or lenders on the wholesale market take fright and withdraw their money, it is generally impossible for a bank to call in its loan assets with anything like comparable speed, so it will be unable to pay back its own depositors and other creditors as required.

A classic example of funding exposure from interbank liabilities was seen in the collapse of the Northern Rock bank in September 2007. That episode is remembered by the public for the queues of depositors waiting outside the bank’s branches to withdraw their money, the first case of its kind in the UK since the mid-19th century. But by that time the damage to the bank had been done: the fatal blow was made in the freezing up of interbank lending in the previous month, since Northern Rock had expanded its loan book rapidly by relying on the wholesale market, which was financing over 70 per cent of its assets. In the race to expand, it offered the country’s most generous terms to depositors and mortgage borrowers alike, and the sudden withdrawal of wholesale funding when the credit crunch started in August 2007 holed the bank below the waterline. The queues of depositors were only a final, visible sign of this.

It is worth comparing parts of Northern Rock’s balance sheet with those of the clearing banks in the post-war era when no banks failed. In 1946, when Bank Rate had been unchanged at 2



per cent for seven years and the war effort had required the purchase of government debt rather than lending to the private sector, the clearing banks' advances of loans and overdrafts were equal to 17 per cent of the total value of their deposits. As restrictions on lending eased, this ratio rose to 54 per cent by March 1966, before falling back again to an average of 50.2 per cent in 1969 after the Wilson government's credit squeeze.¹⁸ In 1970 it was stated that 'the banks do not maintain a fixed ratio of advances to deposits, though in ordinary circumstances there is probably some ratio, around 55 per cent, that they would not wish to exceed.'¹⁹ By contrast, Northern Rock's advances in 2007 were worth over 333 per cent of its deposits (100 ÷ 30) – six times that formerly suggested maximum.

Internationally, Northern Rock's was not the first banking failure which occurred in this way. As we saw, US banks made use of interbank loans long before those in other countries, as a way of overcoming restrictions that prevented them from opening branches in more than one state. By 1986 it was reported that international banking was 70 per cent funded by interbank funds (similar to Northern Rock in 2007), and US domestic banking by 10-12 per cent.²⁰ One of the world's first bank failures of the post-war era, that of Franklin National Bank of Long Island, New York in 1974, came about in much the same way. It was reported at the time to be the largest failure of a bank in US history.²¹ However, according to Richard Dale, Franklin National was never actually insolvent in a balance-sheet sense but – like Northern Rock – it lost the interbank funding on which it had come to rely. (Northern Rock was then still a regional building society, obliged

under contemporary rules to rely on deposits for all its lending.) Dale drew this sobering conclusion:

*'Perhaps the most important lesson to be drawn from market reactions ... is that a bank like Franklin National can purchase funds at will in the wholesale money markets (domestic and international) but that when confidence eventually breaks it may be abruptly cut off from its funding sources... The discipline of the market places operates in such cases not as a corrective mechanism or deterrent but as a means of killing off the offending institution.'*²²

Ten years later one of the largest US banks, Continental Illinois of Chicago, also fell in this way. It was the biggest casualty of the US banking crisis of the 1980s. On the basis of capital adequacy Continental Illinois ought to have been safe since it was one of the most highly capitalised banks in its country. Nevertheless, it became known that it faced difficulties in 1982, and when it failed two years later some 66 other banks had lent to it more than their own capital while another 113 had lent more than half of theirs.²³

In the week in which Vickers reported, French banks were facing similar pressures when it was reported that participants in the US money market had ceased to advance short-term dollar loans to them, having lost confidence over the banks' exposure to Greek debts. This threatened to be the trigger of a second round of financial collapse, three years after Lehman's bankruptcy, until five central banks offered loans to tide the French banks over. It was reported that,

'French banks do have a relatively higher reliance on wholesale funding,



Vickers' doglead is too long

The Vickers Report recognises the problem of interbank lending but it is too easygoing about it. It mentions building-society rules (which now permit up to a 200 per cent assets : deposits ratio) and recommends 'backstop limits' on the ratio's 'absolute level', but does not suggest how much they should be.²⁴ This gives too much leeway to special pleading by the banks during the eight years proposed for implementation of Vickers' reforms.

To minimise such risks, all recommendations on banking reform need to be as simple and clearcut as possible – in this case, a strict embargo on interbank funds for retail banks. Vickers argues that some interbank funding is needed because of the retail banks' reliance on the commercial money market for overnight money. But in the past, overnight lending was a function of the Bank of England and the discount houses, not other commercial banks and money-market funds. The central bank could easily take up that role again.

Vickers would restrict interbank funding only for 'ring-fenced' banks, i.e. deposit-taking retail banks. But the problem of funding exposure can be just as serious for investment banks, and their collapse can threaten a systemic collapse just as easily as a retail bank's can. This applied not only to Lehman Brothers but to Bear Stearns (another New York investment bank), six months before it. We need to strictly limit their use of wholesale markets too.

Vickers argues that certain rules should be 'calibrated' to make them harder or easier at different times in the business cycle. This should be resisted because it requires very difficult and controversial judgments by regulators. They would often get it wrong, and the banks could easily lean on them for more favourable interpretations. During a 'bubble' episode, it is common for bullish financiers to persuade others that 'This time is different':²⁵ that it is not a fleeting bubble and the precautions required for one are not needed – including the introduction of tighter calibrations.

*and that's made them easy targets for anyone remotely squeamish about funding. The ratio of deposits to total assets at French banks, for instance, equated to about 31 per cent in 2010, according to UBS figures. That's compared to 36 per cent for Europe as a whole, 39 per cent for US banks, and a whopping 42 per cent for British ones.*²⁶

However, to our eyes that British ratio only appears 'whopping' when it is reversed, and expressed as a ratio of assets to deposits. It then becomes 238 per cent (100 ÷ 42): about 100 points below the ratio at Northern Rock when

it fell, but still some 4.5 times as much as British banks held under the credit restrictions of the late 1960s. The reported average ratio in France is similar to Northern Rock's when it failed.

If a bank's assets are not fully covered by its deposits, it has to borrow from other banks, introducing the element of 'pyramid' financing which we see here. As a minimum requirement, we therefore propose that no retail bank should be allowed to let its advances exceed its total deposits; this would leave a maximum assets ratio of no more than 100 per cent. However,



returning even to 100 per cent, let alone getting closer to levels that bankers used to consider safe, would mean sharply cutting back bank lending as well as building up customer deposits, since banks were allowed to become so profligate in the meantime. The likely knock-on effects would include, for example, a significant fall in house prices. All of this makes for a difficult transition, but one which seems to us to be essential for the sake of financial safety.

In the long run the development of the wholesale markets has rendered the whole business of banking much less secure than it was when each bank operated with its own depositors' money. Paradoxically, it has also contributed greatly to the growth in political power of the banks. As Continental Illinois illustrated, and Lehman Brothers did again 24 years later, a large bank which is heavily involved in the wholesale markets risks bringing numerous other banks down with it if it fails. The fear of this domino effect inhibited the authorities of the US and other countries from allowing other banks to fail after Lehman Brothers: hence the bail-outs, which governments did not offer to failing banks (even Continental Illinois) in earlier times, when banks did not borrow from each other.

When discussing the failure of Franklin National Bank, Dale pointed to *'the formidable legal complexities that would face the Federal Reserve as lender of last resort if a large U.S. bank with a global multinational banking network were to get into difficulties.'*²⁷ This was the clearest hint, a quarter of a century before it happened, of the complications that arose in picking apart Lehman Brothers' contractual dues and

obligations with other banks and financial organisations after it failed in 2008.

The danger to the economy is much less severe in a bank whose assets are funded only by depositors and which has no derivatives business either. The depositors will lose money (unless there is a good depositor protection scheme), and this could affect any employees they have and those they do business with. But those effects will not have the wide ramifications that the consequential failure of several other **banks** will, because of the central, coordinating role which the banking network plays. And banks can use the knowledge of that danger to get their own way with governments without even making explicit threats, for everyone can see that they are capable of pulling the whole economic house down. The source of this unaccountable power needs to be cut back for the sake of a healthy democracy as well as for financial reasons.

This series of dangers already made it possible in 1987 to write that:

*'The modern interbank markets appear to be both much more fragile and less prudent than previous forms of banking, and the attempts made so far to find ways to regulate them or limit the damage from a failure could well prove unequal to the task. J.L. Metcalfe is not alone in seeing a danger of the banking system collapsing "like a house of credit cards."'*²⁸



The tail wagging the dog

Wholesale banking in the early 21st century is not only much larger than it was in the 1970s and 1980s, but immensely more complicated due to the development since that time of financial derivatives, the trade in which is dominated by banks and much of which takes place between banks as principals. By the end of December 2010, the total amount outstanding on the world's 'over-the-counter' derivatives markets was estimated by the BIS to amount to \$601 trillion,²⁹ or about 275 times the 'staggering' volume of interbank loans reported in 1987. Much of this is traded by banks with their clients, but interbank trading of derivatives is also widespread. Most of the business is held off the banks' balance sheets, and it is therefore extremely difficult for the BIS and domestic authorities to evaluate and regulate it.

Now, an important proposal for improving stability in the Vickers Commission's report is for the retail and investment operations of any large bank to be placed eventually in separately capitalised subsidiaries.³⁰ This would be a much weaker version of the US' complete separation of commercial and investment banks under the 1933 Glass-Steagall Act, which was repealed in 1999. A comparable official distinction to Glass-Steagall was made in the UK between the 'clearing' and 'merchant' banks. However, elsewhere in the financial sector the history of erecting fences, or 'Chinese walls', within a company or corporate group in order to avoid conflicts of interest (for example to isolate the advice given by analysts from the trading positions held by a bank's own brokers) has hardly proved very effective. These types of bank

need to be entirely separated once again.

An important factor in all this is the growth of the derivatives markets. Vickers would effectively permit only the 'non-ring-fenced' parts of a banking group to be involved in derivatives.³¹ But that would still leave the casino tail wagging the banking dog. For the Vickers Commission's calculations indicate that between 64 and 82 per cent of British bank assets would fall outside the scope of ring-fenced retail banks.³² It is clear from this which form of banking would continue to dominate the banking groups even after the two forms were placed in separate subsidiaries. The interests of socially useful 'utility' banking would remain subordinate to those of the usually more profitable, and still freely functioning, financial trading operations. Vickers shows that, in the UK by 2010, loans to financial companies were equal in value to those to non-financial companies and households, compared with about one-quarter of the respective value in 1987 (let alone 1947 or 1967, which are not shown). In total, the loans to financial companies had come to be worth well over the UK's gross domestic product.³³ That is a measure of the risk we will take if we allow 'non-ring-fenced' banking to continue, with derivatives attached, with as little check as Vickers still advocates. As a US commentator, Taibbi, wrote,

'The reality is, the brains of investment bankers by nature are not wired for "client-based" thinking. This is the reason why the Glass-Steagall Act, which kept investment banks and commercial banks separate, was originally passed [in the US] back in 1933: it just defies common sense to have professional gamblers in charge



*of stewarding commercial bank accounts.*³⁴

It is essential to ensure that retail utility banking becomes once again the dominant part of the British banking scene, as it was in the days of separation between the clearing banks and the very much smaller merchant banks of the old City. Otherwise, the scene painted by Taibbi will still be true to life.

Bankers try to justify the derivatives business as a means of laying off risks for themselves and others, but it was at the heart of the biggest financial crisis for over 70 years with the abuse of SIVs, credit default swaps (CDS's), dark pools of money and so forth. They did not exist at all in the period when there were no banking crises. Bankers' claims of their necessity for risk-hedging have to be tested at every turn. Wherever possible, derivatives should be taken out of banks' hands entirely and traded on financial futures exchanges, which were designed in the 1980s for that purpose; banks in the UK should not be allowed to take any active part in those or any other futures exchanges – as indeed they did not before the Big Bang. Nor should any bank be permitted to trade with other banks in any derivatives **not** traded on exchanges, but only with clients which wish to hedge identifiable risks. Derivatives instruments themselves should be subject to a 'Committee on Safety of Medicines' type of control. Those that already exist, as well as any that are invented in the future, should all require approval by a special licensing authority. The proposer would have to satisfy that authority that a proposed instrument would serve a useful purpose and not risk **any** grave economic harm. Lesser but still harmful side-effects would also have to

be fully assessed and spelt out. This strict principle has applied to medicines for nearly 50 years, since the Thalidomide scandal, and the economic risks are so serious that it seems entirely appropriate here too.

It implies a sharp scaling back in size of the derivatives market, so that it only serves proper hedging needs and, as far as possible, is out of the hands of the banks. It requires the market to be controlled in detail by a new licensing authority – perhaps an expanded version of existing commodity futures regulation, as the US has already decided to do under its Commodity Futures Trading Commission in the Dodd-Franks Act on financial regulation in 2010.

None of that will be easy and it cannot be achieved overnight or even from one year to the next. The process will be full of risks and disputes. But like clearing a minefield, it needs to be done for the future safety of us all. And it has to be done soon: if the complacency which currently attends it continues, the world will soon face a worse crisis than in 2008, and one which will be too big for any government to bail out. The danger is that cutting back the derivatives mountain will only seriously be attempted after that occurs, when it will have already wrought the calamity that it threatens; it needs to be done in an orderly way well before we reach that stage.



A resilient banking system

Ecological theory suggests that a system will be most resilient when it is divided into compartments which protect it from dangers that come in from outside. Among its characteristics,

*'A resilient world consists of modular components. When over-connected, shocks are rapidly transmitted through the system – as a forest connected by logging roads can allow a wild fire to spread wider than it would otherwise.'*³⁵

This relates directly to the excessive interconnectedness that Wolf identified. It is another way of describing the domino effect discussed above in relation to interbank markets. For banks to be resilient, they should be set up in the modular way described here, without avoidable connections between them that can rapidly transmit shocks through the system. This interconnectedness between competing banks is quite different – indeed, almost the polar opposite – of the tightly circumscribed competition between **independently funded** banks that existed in the earlier era. The modular arrangement implies no interbank lending and strong exchange controls to reduce the degree of financial connectedness across frontiers. The easy reliance of banks on global wholesale markets is one of the most powerful factors behind the reckless growth and instability of modern finance, as the Vickers Report recognises when it proposes to prohibit ring-fenced banks from offering banking services which 'directly increase ... exposure ... to global financial markets'.³⁶ Under this system every bank in the world becomes subject to the whims of

freebooting hot money, as the people of Iceland discovered to their cost.

It is noteworthy that in the UK the larger building societies, whose participation in wholesale markets is still restricted by law, were not seriously damaged by the financial crisis (although some small ones covering limited areas, such as the Dunfermline B.S. in Scotland, suffered when persuaded by banks to participate in securitisation trades that they little understood). They have a more resilient system, which is less prone to crash because it is built in a modular way without the means to communicate shocks through it. That is much more like the banking system that existed between 1945 and the Bank of England's liberalising reform of 1971 than that which came close to catastrophic collapse in 2008.

However, the fragility of the modern banking system is not due to interbank activities alone, and restricting or outlawing wholesale and derivatives markets would not solve the problem on their own. As we saw, there were many aspects of 1950s and 1960s banking law and practice which made the system safer, and they all deserve to be reconsidered. The main banking reforms that Green House proposes are therefore these:

- New rules should be as simple and clearcut as possible, reducing thereby their susceptibility to future lobbying by banks.
- Abandon the assumption that competition necessarily makes banking safer: it is a generation of unrestrained competition in credit and derivatives which has brought us to this pass.



- Legally recognise a bank's financial responsibility towards its depositors to be more important than its fiduciary duty to external shareholders. This legal responsibility should attach to a bank's directors as well as the bank institutionally.
- Concentrate on assets:deposits as the most important financial ratio of the banks, with an absolute maximum of 100 per cent permitted to deposit-taking banks. This would now be a prudential requirement, aimed at promoting the stability of finance, not a facet of monetary policy as it was 45 years ago.
- There should be no 'calibration' of any regulations against the current state of the financial markets or the business cycle: any rule must be applicable identically at all times. This is an extension of the first proposal.
- Investment banks must be sharply reduced in size to become once again the junior partners of the banking sector, as well as being subject to strict limits on their interbank activities too.
- Make sure that financial derivatives are traded on exchanges as much as possible, without any banking groups or wholly or partly owned subsidiaries of them allowed to participate on these or any other exchanges.
- Permit OTC derivatives to be traded by banks only with actual risk-facing non-financial clients, not with each other or with financial speculators or investors.
- All derivatives instruments – those that already exist as well as any that are invented in the future – should require approval by a licensing authority. It would be up to the proponent to satisfy the authority that the proposed instrument serves a useful purpose and does not risk **any** grave economic harm.
- A general reintroduction of exchange controls designed, among other things, to sharply reduce international flows of money between banks unless they are required by the needs of international trade or (in the right circumstances) corporate investment.
- Consider all the others of the 14 points previously listed, in order to determine what aspects of the wider context of banking and the internal culture of the banks need to be changed so as once again to favour stability.

By no means all of these proposed reforms come under what is conventionally understood as bank regulation, as expressed for example in the Basel agreements. But they would be far more effective in preventing future crises than those agreements, and they would take the Vickers proposals some of the greater distance that is required of them. All of this merely underlines the colossal scale of the present problem. It would have been difficult to unwind in the 1980s, although apparently necessary according to the descriptions of experts in bank regulation at that time. Now it has become terrifyingly urgent, as the sense of horror which attended the near-meltdown of the banking system in the autumn of 2008 showed. But we acknowledge that it could be phenomenally difficult to achieve.



References

- Bank of England (1970), 'Competition, Official Controls and the Banking System', internal note dated December 24th, available at www.bankofengland.co.uk/about/history/bankhistory1970.pdf (September 2011).
- Dale, R. (1984), *The Regulation of International Banking*, Cambridge, England: Woodhead-Faulkner.
- Donaldson, P. (1967), *Guide to the British Economy*, revised edition, London: Pelican.
- Gibson, N.J. (1970), 'Monetary, Credit and Fiscal Policies', Ch. 2 of A.R. Prest (ed.), *The UK Economy: A manual of applied economics*, 3rd edition, London: Weidenfeld & Nicolson.
- Grady, J. and M. Weale (1986), *British Banking, 1960-85*, London: Macmillan.
- Guttentag, J.M. and R.J. Herring (1986), 'Disaster Myopia in International Banking', *Essays in International Finance No. 164*, Princeton, N.J.: Princeton University.
- Guttentag, J.M. and R.J. Herring (1985), 'Financial Innovations to Stabilize Credit Flows to Developing Countries', *Discussion Paper in International Economics No. 3*, Washington: Brookings Institution.
- Independent Commission on Banking (ICB, or Vickers Commission) (2011), *Interim Report: Consultation on reform options*, <http://s3-eu-west-1.amazonaws.com/htcdn/Interim-Report-110411.pdf> (September 2011).
- Lines, T. (1987), 'OECD Banking Regulations and Third World Debt Management', M.Phil. dissertation, Brighton: Institute of Development Studies, University of Sussex. Hard copies are available on request.
- Llewellyn, D.T. (1987), 'Competition and the Regulatory Mix', in *National Westminster Bank Quarterly Review*, August, pp. 7-8, London: National Westminster Bank.
- Metcalf, J.L. (1986), 'Self-Regulation, Crisis Management and Preventive Medicine: The evolution of U.K. bank supervision', in E.P.M. Gardener (ed.), *U.K. Banking Supervision: Evolution, practice and issues*, p. 139, London: Allen & Unwin.
- Moran, M. (1986), *The Politics of Banking: The strange case of competition and credit control*, 2nd edition, London: Macmillan.
- Oppenheimer, P. (2011), 'Competition in banking cannot be unfettered', *Financial Times*, July 12th, www.ft.com/cms/s/0/89458ffa-acb8-11e0-a2f3-00144feabdc0.html.
- Reinhart, C.M. and K.S. Rogoff (2008), 'Is the 2007 U.S. Sub-prime Financial Crisis so Different? An international historical comparison', revised version of a paper



presented at the American Economic Association, New Orleans, January 2008,
www.economics.harvard.edu/faculty/rogoff/files/Is_The_US_Subprime_Crisis_So_Different.pdf (September 2011).

Taibbi, M., 'The \$2 billion UBS incident: "Rogue Trader" my ass', September 15th,
www.rollingstone.com/politics/blogs/taibblog/the-2-billion-ubs-incident-rogue-trader-my-ass-20110915 (September 2011).

Walker, B. (2008), 'Resilience Thinking', in People & Place, Vol. 1, No. 3,
www.peopleandplace.net/featured_voices/2008/11/24/resilience_thinking (September 2011).



Endnotes

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- ¹ Reinhart and Rogoff (2008), p. 3.
- ² Oppenheimer, P. (2008), ‘Turn banking regime clock back 40 years’, letter in *Financial Times*, October 14th, www.ft.com/cms/s/0/c5e4ded4-9988-11dd-9d48-000077b07658.html (September 2011).
- ³ Gibson (1970), p. 58.
- ⁴ Moran (1986), p. 173.
- ⁵ Definition taken from Lines (1987), pp. 35-36.
- ⁶ Llewellyn (1987), p. 8.
- ⁷ Grady and Weale (1986), p. 198.
- ⁸ Donaldson (1967), p. 56.
- ⁹ Oppenheimer (2011).
- ¹⁰ Gibson (1970), pp. 51-52.
- ¹¹ In February 2009 the House of Commons’ Treasury Select Committee discovered that none of the four men at the top of the two largest British banks to fail, RBS and HBOS, had any banking qualifications. The *Sunday Herald* (Glasgow) reported, ‘One MP was met with silence from the under-fire bankers when he asked: “This committee thinks that a banking qualification is important. Does any one of you think a banking qualification is important?”’ (www.heraldsotland.com/ex-chiefs-of-royal-bank-of-scotland-and-hbos-admitted-to-having-no-formal-banking-qualifications-1.902358 - accessed in September 2011).
- ¹² References to Mr Heath’s jibe cannot now be found on an internet search engine, although it was widely discussed at the time. That indicates the extent to which this has become an undisputed norm.
- ¹³ M. Wolf, ‘Are UK banks too big to rescue?’, *Financial Times*, January 22nd, 2009, www.ft.com/cms/s/0/3ec9b846-e8bd-11dd-a4d0-0000779fd2ac.html (September 2011). Emphasis added.
- ¹⁴ ‘BIS sees slower interbank lending’, *Financial Times*, July 29th, 1987.
- ¹⁵ Donaldson (1967), p. 52
- ¹⁶ Gibson (1970), p. 60.
- ¹⁷ Lines (1987), p. 55.
- ²⁰ Lines (1987), p. 56, citing Guttentag and Herring (1985), p. 19.
- ²¹ *Time Magazine*, ‘Franklin National Fizzles Out’, October 21st, 1974, www.time.com/time/magazine/article/0,9171,944999,00.html (September 2011).
- ²² Dale (1984), p. 161.
- ²³ Guttentag and Herring (1986), p. 19.
- ²⁴ ICB (2011), pp. 61-62
- ²⁵ The title of a book by Reinhart and Rogoff in 2009.
- ²⁶ T. Alloway, ‘Un petit French funding problème’, in [ft.com/alphaville](http://ftalphaville.ft.com/blog/2011/09/01/666396/un-petit-french-funding-probleme/), September 1st, 2011, <http://ftalphaville.ft.com/blog/2011/09/01/666396/un-petit-french-funding-probleme/>.
- ²⁷ Dale (1984), p. 161.
- ²⁸ Lines (1987), p. 63, citing Metcalfe (1986), p. 139.
- ²⁹ www.bis.org/statistics/otcder/dt1920a.pdf (September 2011).
- ³⁰ ICB (2011), p. 116, para. 4.170.
- ³¹ ICB (2011), paras (c) – (e) of the ‘prohibited services’ listed on p. 52.
- ³² ICB (2011), p. 53, Fig. 3.5.
- ³³ ICB (2011), p. 51, Fig. 3.4.
- ³⁴ Taibbi (2011) Emphasis in the original.
- ³⁵ Walker (2008).
- ³⁶ ICB (2011), p. 51.

