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How to Make Banks Less Fragile

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The Bank of England isn't the sort of place you would expect to find iconoclasm. If you've a meeting there, you are ushered into a banking hall with a fine rotunda, and sit overlooked by a portrait of Abraham Newland, at the end of the eighteenth century the Bank's Chief Cashier, the man who signed the banknotes. Every so often, you'll spot one of the Bank's livery servants, dressed in a jacket of a rather fetching pink and sometimes wearing a top hat. You walk to your meeting across the Bank's mosaic floors and through its marble halls, catching an occasional glimpse of the handsome private garden at the heart of its Threadneedle Street building.

Three years ago, though, the Bank of England started to calculate a number that does more than any other to shatter banking's preferred image of itself. That number first appeared in March 2010 on a slide accompanying a talk in Hong Kong by Andrew Haldane, the Bank's Executive Director for Financial Stability, and then reappeared later that year in a chart buried at the back of the December issue of the Bank's *Financial Stability Report*. The number was the size of the subsidy that taxpayers provide to British banking by being available to bail out banks if things go badly wrong, which was calculated by working out the value to banks of the difference between the two ratings that credit rating agencies typically now give them: a stand-alone rating, and a higher rating that takes likely government support into account.

The value of that subsidy for 2009 was calculated by the Bank as £107 billion. The number didn't attract much attention (only nerds like me scrutinise the charts in *Financial Stability Report*), but it should have. It's more than the government spent in that year on social security or on education, and almost as much as it spent on health or pensions.

The Royal Bank of Scotland, however, did grasp the threat to the image of banking. It commissioned its own analysis from the economics consultants Oxera, who took a different approach, involving treating government support as what traders call a 'put option' (in effect, insurance) on the aggregate assets of the banking system, and using the theory of such options to work out the value of the put. Oxera produced a baseline estimate of the annual subsidy of £5.9 billion.

That's actually still a pretty handy sum of money: it's more than government spends on Jobseeker's Allowance, or – if you prefer – you could use it to pay for the BBC, throw in the wage bill of the Royal Navy, and still have a rather impressive pile of change. But it's less shocking. Unfortunately, however, Oxera's way of estimating the value of the taxpayer subsidy involves questionable assumptions about interest rates and the exact nature of the put option, and further analysis by economists at the Bank of England suggests that the option's true value (and thus the taxpayer subsidy) for 2010 lay between around £30 billion and £120 billion.

There's nothing specifically British about the subsidy, apart from the fact that our banks are giant relative to the British economy and two of the biggest of them, Lloyds and the Royal Bank of Scotland, remain wards of the state. Drawing on work by the International Monetary Fund, the financial news service Bloomberg calculates the US subsidy as $83 billion a year. Senators Sherrod Brown (Democrat, Ohio) and David Vitter (Republican, Louisiana) have asked Congress's investigative arm, the Government Accountability Office, to come up with a more authoritative figure. Nobody to my knowledge has done the equivalent calculation for continental Europe, but subsidies there are likely also to be gigantic.

I don't object in principle to taxpayer subsidies: after all, I work in a sector, higher education, that still receives large amounts of public money. Furthermore, the subsidy to banking is an insurance policy that only occasionally results (as it did in 2008) in direct cash injections. The subsidy doesn't go directly into bankers' pockets, and the exact distribution of its benefits is not entirely clear: because it makes it cheaper for banks (with their current, debt-laden balance sheets) to borrow to fund their loans, it must reduce somewhat the interest rates on those loans. One can, however, reasonably ask whether an activity such as banking in which participants can become enormously wealthy should receive a subsidy on this scale.

At least equally important is the way in which the subsidy (and the 'insurance' by the taxpayer that lies behind it) creates a systematic economic effect that has huge consequences for the behaviour of the banking sector. To understand that effect, we must delve a bit into banks' balance sheets, which requires a bit of terminology.

Let's compare a bank to an individual homeowner. Her flat is an 'asset': she can live in it, rent it out, sell it. A bank's assets include the buildings it owns, but those are less important than its financial assets: the loans it has made and the bonds or other financial securities it has bought. They are assets because they generate income for the bank.

Most homeowners fund their purchase of a flat or house with a mixture of a mortgage (their 'debt') and a deposit (their 'equity'). Similarly, banks raise the money to acquire their assets (to make their loans or purchase securities) with a combination of debt and equity. The latter is the money invested in the bank by its shareholders, together with any profits it has retained from its activities in previous years.

The insurance that taxpayers provide to banks has the effect of helping make it seem to bankers that it is much cheaper for them to take on debt to fund their assets than to raise cash from shareholders, for example by issuing new shares. Taxpayer bailouts don't protect banks' shareholders from swingeing losses: the shares of Lloyds and RBS, for example, are now worth a tiny fraction of their value prior to the crisis. But the bailouts in Europe and the US have generally meant that those who lent to banks have got their money back. Because investors can reasonably hope that this will continue to be the case, they are prepared to lend banks money on terms far more favourable than they would insist on if banks genuinely were ordinary commercial enterprises.

In part because debt thus seems cheaper than equity, the composition of banks' balance sheets has shifted drastically over the decades.[1] In the 1880s, US banks had average levels of equity of just below 25 percent, and UK banks of around 15 percent. As described below, by the time of the onset of the crisis in 2007, equity levels had fallen to small fractions of those numbers, and they are still well below them now. The consequence is that the banking system has become inherently more fragile.

The analogy between a bank and a homeowner shows how lower levels of equity increase risk. Imagine you have bought a flat for £100,000 (I know that's very cheap, but it simplifies the arithmetic), with a deposit ('equity') of £20,000 and a mortgage of £80,000. If house prices go up 20 percent, you've doubled your equity. (In that simple sum lies the fatal fascination of the British with property.) If house prices go down, your equity loses its value, but it can absorb a fall of up to 20 percent before you are in negative equity, with your flat worth less than your debt.

Now think what happens if you manage to get a 95 percent mortgage and so have equity of only £5,000. You are now in a position to earn a very high return on your equity: an increase in house prices of as little as 5 percent doubles it.

Being in the equivalent of that position can be very attractive to those such as senior bankers whose performance was – and, alarmingly, still is – often judged by their bank's return on equity. The easiest way to boost that return is to 'lever up' as people in finance put it: to employ increased levels of debt, in other words to move from the analogue of buying a flat with a 20 percent deposit to buying it with only a 5 percent deposit. Another of Haldane's charts, this time accompanying a talk in London in July 2010, suggests that levering up in this way explains almost all of the increased return on equity achieved by British banks in the run up to the crisis.

However, the magic of leverage works both ways. If you have only 5 percent equity in your flat, even a small decline in house prices – anything more than 5 percent – plunges you into negative equity. Negative equity is nasty for a person but potentially fatal for a bank. It constitutes insolvency, because it means that a bank's assets are worth less than its debts.

By the time of the crisis, many of the world's leading banks were in the situation of the homeowner with only 5 percent equity, if not worse. I've just spent a rather chilling hour going through the balance sheets of Europe's leading banks for December 2006. It was chilling because there – in black and white, but entirely unnoticed back then, in the last months of pre-crisis complacency – is the evidence of the fragility of those banks.

Take the Royal Bank of Scotland, for instance. At the end of 2006, it had on its balance sheet assets worth in total £848 billion, the equivalent of 64 percent of UK GDP. (That's what it means to be a giant bank, and RBS still had a year of asset growth to come.) Its balance sheet, however, records equity of only £38 billion, 4.5 percent of total assets. Lloyds had an equity level of 3.3 percent, and

[1] Andrew Haldane wrote about this in the *LRB* of 23 February 2012.

Barclays of 2.7 percent. Deutsche Bank had 2.9 percent equity; UBS had 2.3 percent. (It's easy enough to do this kind of exercise for yourself. Big banks' annual reports are nearly all on the web. Choose a bank and a year: the reports for 2012 are now generally available. Don't be too swayed by the bank's own calculations of capital ratios: these are discussed below. Go directly to the balance sheet, find total equity and total assets, and divide. I have to warn you that you may not find the exercise entirely reassuring.)

Equity of less than – sometimes much less than – 5 percent was in the case of many banks simply too little to absorb the losses incurred in the crisis. For example, between June 2007 and June 2009, the months that frame the initial phase of the global banking crisis, the aggregate market value of the assets of the UK's big banks fell (on the basis of Bank of England figures analysed by Oxera) by 5.3 percent. That was enough to push Lloyds and RBS over the brink and take Barclays uncomfortably close to it.

A robust banking system should be able to absorb a 5.3 percent decline in the value of its assets. The UK's banking system a century previously would have been shaken, but could have survived: the financial historian David Sheppard calculated that the system's average level of equity in 1908 was 11.2 percent. The shares of banks would on average roughly have halved in value, and some weaker institutions might have failed, but bailouts on the scale of 2008 would not have been needed.

The first clear sign that the levels of equity in the West's post-war banking system had become inadequate came in the early 1980s, when the solvency of several large US banks was threatened by defaults or threatened defaults on their international loans, especially to Argentina, Brazil, Chile and Mexico. Congress – which could still get itself together to do this sort of thing back then – responded with the 1983 International Lending Supervision Act, which demanded increases in levels of equity. Bank lobbyists, however, persuaded decision-makers that other international banks, especially Japanese banks, might then be able to undercut US banks by offering loans at lower rates of interest.

Paul Volcker, then Chair of the Board of Governors of the Federal Reserve, took on the task of securing international requirements similar to those that had been imposed on US banks. At a September 1986 private dinner with Robin Leigh-Pemberton, Governor of the Bank of England, and three of his officials (held in the Governor's official residence on New Change), Volcker found he had an ally. With Mrs Thatcher's 'big bang' reforms to the City of London due to come into effect the following month, the Bank felt the need to move from its traditional 'gentleman's club' supervision of banks to more formal rules.

The other members of the Basel Committee on Banking Supervision, which brings together representatives of the central banks and regulatory bodies of the leading industrial countries, were then pressured or persuaded into agreement, a process described by Charles Goodhart in his book on the history of the Committee.[2] At the core of the 1988 Basel Capital Accord ('Basel I', as it would

[2] *The Basel Committee on Banking Supervision: A History of the Early Years 1974-1997* (Cambridge University Press, 2011).

now be called) is a seemingly straightforward rule, known – after the then chair of the Basel Committee, the Bank of England's Peter Cooke – as the Cooke ratio: a bank's ratio of 'capital' to 'risk-weighted assets' must be at least 8 percent.

The latter figure wasn't the result of any explicit cost-benefit analysis: it appears simply to have been chosen (apparently by Cooke himself) after an examination of the actual ratios for the world's leading banks. The 8 percent ratio 'largely fell out of the data', says Goodhart, 'since the aim was to push up ratios somewhat everywhere, but not to do so by so much as to make it too difficult for large international banks to comply'.

The Cooke ratio was, however, only apparently simple. Both its numerator ('capital') and its denominator ('risk-weighted assets') encode what has become decades of complex struggles amongst regulators and between regulators and banks. Capital wasn't defined simply as equity: for example, various forms of debt instruments were allowed to count as well.

Even more important – in the sense that it directly shaped and still shapes the day-to-day behaviour of banks – was risk-weighting. If a bank made a loan to a non-financial corporation, that loan had a 100 percent risk weight (it counted fully in the calculation of the Cooke ratio). However, under the Basel I rules, if a bank lent money to another bank domiciled in an OECD country, that loan had a risk weight of 20 percent: only a fifth of its value counted. Under those rules, too, a bank could buy as many bonds issued by OECD governments in their own currencies as it wished without affecting its Cooke ratio in the slightest, even if that government was well on the way to becoming a major debtor. The bonds of, for example, Greece (an OECD member since 1961), Italy (1962) and Japan (1964) were 'zero-weighted' under Basel I.

The idea of risk weighting seemed sensible, even necessary, because otherwise banks might have been tempted simply to accumulate the riskiest and thus highest-yielding assets. However, given the banking system's aversion to equity, risk weighting also created a huge incentive for banks to find ways to reduce the risk weights of their assets even if those ways did not in fact reduce actual economic risks. Indeed, as my colleagues at the Centre for Research on Socio-Cultural Change at the University of Manchester have emphasised in their book, *After the Great Complacence*, much of what has counted over the past 25 years as 'financial innovation' has been a response to incentives of that sort.[3]

Consider, for example, securitisation, a technique that rapidly gained popularity in the 1980s and 1990s. In this, a bank creates a separate legal entity (called a special purpose vehicle), which then buys from the bank a pool of the loans that it has made, raising the money to do so by selling investors securities that are claims on the income stream from those loans. Those securities are structured into a set of classes called tranches: the highest tranche is the safest because its holders have the first claim on the income stream; the lowest tranche is the riskiest.

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[3] Ewald Engelen, Ismail Ertürk, Julie Froud, Sukdev Johal, Adam Leaver, Michael Moran, Adriana Nilsson and Karel Williams, *After the Great Complacence: Financial Crisis and the Politics of Reform* (Oxford University Press, 2011).

Securitisation can indeed make banks' holdings of loans less risky. However, in early securitisations, a bank would often retain the lowest tranche in order to persuade outside investors to buy the higher tranches, with the consequence that the bank would still bear most or all of the anticipated losses on the loans. The economic risks it faced were therefore by no means eliminated, but because the equity tranche would be much smaller in size than the entire pool of loans, the bank's total of risk-weighted assets would fall, and thus the need for equity would be reduced. In more recent securitisations, banks often sold the equity tranche as well, but they started to take on a variety of 'off-balance-sheet' commitments to special purpose vehicles, commitments that didn't add to risk-weighted capital but were to prove very costly in the crisis.

The entrenched nature within banking of the aversion to equity means that whenever I've spoken to someone involved in securitisation they've always simply taken for granted the need to keep risk weights as low as possible. To regulators, however, securitising loans while retaining much of their risk smacked of 'regulatory capital arbitrage': self-interested exploitation of the detail of the Basel rules.

Concern about regulatory arbitrage helped drive the search for a successor to Basel I. After prolonged negotiations, the Basel II agreement started to come into force in the mid-2000s. (Basel agreements have no legal standing until turned into national or EU regulations, and the US has never fully implemented Basel II.) The new agreement involved supplementing simple rules akin to those in Basel I – though those remain available for use by less sophisticated banks – by more elaborate measures of risk. As one person involved in the research underpinning those risk measures told me, the goal in Basel II was to make the requirement for equity what 'a bank would want to hold itself if it was doing things sensibly', thus removing the incentive to circumvent the rules.

As he told me, 'the view was that … you would never be able to plug the dyke against financial innovation … that regulations could never be so precise that there were no ways around them if the institutions felt they had a strong incentive to do it … We in the UK were reasonably conservative on lots of different issues, but the Americans were kind of convinced about the … correctness of their bankers' own assessments of risk … it was kind of low-level regulatory capture … not even driven by boozy lunches, just driven by the fact that they [US regulators] were having too much contact with, you know, the masters of the universe'.

Banks judged by their regulators to be sufficiently sophisticated were allowed considerable freedom to use their own analyses of risk in calculating their capital requirements. A 1996 change to Basel I, the Market Risk Amendment, permitted them to do that for the risks caused by fluctuations in interest rates and market prices, and Basel II allowed them to do it for credit risk: the risk of borrowers defaulting. Although Basel II lays down the credit-risk models to be employed, it gives banks latitude in how exactly to employ them, and in particular allows them to use their own data sets to calculate crucial risk parameters.

Recent investigations by regulators have revealed very large differences in the ways different banks assess the same or similar risks. Some of those differences

are the result of directives from different national regulators, but it's hard entirely to escape the suspicion that methods are being chosen so as to reduce risk weights and thus levels of equity. Even some senior bankers admit that the process is opaque. In January 2012, for example, Vikram Pandit, then Chief Executive of the US banking giant Citigroup, wrote in the *Financial Times*: 'capital requirements are not as transparent as many presume. … Without knowing what [a bank's] underlying assets are (only insiders and select regulators know that), outsiders, including most investors, cannot properly assess how that institution calibrates risk.'

The result of the arbitrage of Basel I, and of the new freedoms granted by the Market Risk Amendment and by Basel II, was the fragile banks, with only thin slivers of equity, described above. The crisis has, of course, generated a raft of proposals for making banking safer. Some of these involve changing the structure of banking, for example by separating (or at least creating a 'firewall' between) riskier investment banking and the more mundane commercial activities essential to the smooth day-to-day running of economies. Other proposals include 'living wills' – preprepared legal plans that make it easier to wind up an insolvent bank – as well as measures to restrict banks to trading on behalf of their clients (thus banning 'proprietary' trading designed simply to earn the bank profits) and/or to limit bonuses and make them more dependent on the medium-term performance of the bank.

However, given the way in which the crisis exposed the inadequacy of levels of equity, it is unsurprising that the most concerted international effort has gone into a new Basel agreement. Basel III broadens the measurement of risk, in particular in respect to financial derivatives. It tightens the definition of 'capital', and insists that 4.5 percentage points of Cooke's 8 percent ratio must be made up of equity. There are also two crucial additions to the Cooke ratio. The first is a 'capital conservation buffer' of a further 2.5 percentage points of equity. Once the ratio of a bank's capital to its risk-weighted assets falls below 10.5 percent it becomes subject to gradually increasing restrictions on bonuses to its employees and dividends to its shareholders. Second, banks judged to be of global systemic importance have to have an additional layer of equity of up to 2.5 percentage points. In total, a very big bank must therefore have equity of at least 9.5 percent of its risk-weighted assets.

Basel III is likely to be implemented in the European Union without too much watering down: the necessary legal instrument, the Capital Requirements Directive IV, is close to being agreed. Hopefully, too, the US will follow suit, though it's difficult to be certain. Even if that happens, though, one can't conclude that the fragility of banking will then have been overcome and the need for taxpayer subsidies removed.

Consider the new demand for equity of up to 9.5 percent of risk-weighted assets. The latter often make up no more than a third to a half of a bank's total assets, so it's perfectly possible for a bank to comply fully with Basel III and still have a ratio of equity to total assets of less than 5 percent. Such a bank would still be poorly capitalised by historic standards – still likely to be pushed into insolvency or taxpayer bailout by perfectly imaginable losses, for instance losses of no more

than the 5.3 percent average suffered by British banks in the crisis. One regulator I spoke to quite reasonably described Basel III as a considerable achievement, involving crafting a complex international agreement 'in the thick of the deepest recession since the Great Depression'. As he put it, however, inadequate levels of equity in the banking system are the 'itch that remains unscratched'.

Can the itch be scratched? Can the banking system return to the levels of equity of the 1880s or 1900s? Any banker will tell you – it's one of the few points on which you tend to find unanimity – that doing so would be enormously expensive. If banks were forced to do that, bankers say, they would have to cut their lending drastically, the remaining loans would have to be at very high rates of interest, and any hope of the West climbing back out of recession would therefore be destroyed.

Such opinions unquestionably have the ear of mainstream politicians. Because of the known vulnerability of risk weighting to regulatory arbitrage, the drafters of Basel III have also proposed a backstop known as the 'leverage ratio', a minimum capital ratio (of 3 percent) in which the denominator is not risk-weighted assets but total assets and exposures. Because 3 percent is a fairly low requirement, both the UK Independent Commission on Banking and the Parliamentary Commission on Banking Standards have proposed a tougher minimum for British banks of 4 percent. George Osborne, however, has rejected their proposal.

For all that it sounds plausible, bankers' view that equity is inherently expensive is fiercely contested by a number of financial economists. Until now, the controversy has been subterranean – pursued, at most, in the letters pages of the *Financial Times* – but it has been put more firmly into the public domain by a controversial new book by two of those economists, Anat Admati and Martin Hellwig: *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*.[4]

Controversy over whether equity is expensive might seem utterly arcane if it wasn't for the fact that at issue is the fragility of banking, which concerns us all: the last banking crisis has been bad enough, and another would likely be catastrophic, because governments might well lack the borrowing capacity to bail out the banking system. At the core of the debate is the validity of one of the fundamental results of modern financial economics, the Modigliani-Miller theorem.

In the early 1950s, Franco Modigliani and Merton Miller, both of whom were to become Nobel laureates, were economists in the newly-established business school at the Carnegie Institute of Technology (now Carnegie Mellon University) in Pittsburgh. Politically, they were quite different: Modigliani was a Keynesian and had come to the US as a refugee from Italian fascism, while Miller was a Chicago School free-market enthusiast. They shared, however, an impatience with colleagues – such as the business school's best known member, organisation theorist Herbert Simon – whom they felt paid insufficient attention to fundamental economic processes.

[4] Princeton University Press, 2013.

The question Modigliani and Miller addressed, first separately and then in collaboration, was whether the balance between debt funding and equity funding chosen by a firm affects the overall costs to it of that funding. Their result – the Modigliani-Miller theorem – is that, at least under idealised market conditions, it does not. Yes, equity is more expensive than debt (even without taxpayer insurance of debt), because it is riskier from the investor's viewpoint: debt holders take losses only once equity holders are wiped out. But there's an opposing effect (let's call it the 'Modigliani-Miller offset'). As the proportion of equity funding goes up, its riskiness goes down, because there's more equity to absorb losses. The rate of return demanded by equity investors therefore falls, because investors will accept a lower return on less risky shares. Modigliani and Miller showed that the two effects balance out exactly: counterintuitively, the mix between equity and debt chosen by the firm makes no difference at all to its cost of capital.

Modigliani and Miller knew that their theorem involved assumptions that weren't literally true. When I interviewed him about this work in 2001, shortly before his death, Modigliani said that the first group he told about the theorem was a class he was teaching: 'I announced the theorem, and said "I don't believe it."' For example, amongst the idealised conditions assumed in Modigliani and Miller's original analysis was that there were no differences between the tax treatment of the interest payments firms make on their debt and the dividend payments they make to equity holders. In actuality, interest payments were and are tax-deductible and dividend payments are not.

Nevertheless, Modigliani and Miller believed that they had identified an important economic mechanism, and all the financial economists I know agree that the Modigliani-Miller offset is a real effect. The subterranean controversy between economists and bankers boils down to how big the offset is.

The bankers who regard increased levels of equity as prohibitively expensive seem implicitly to be positing that the offset is zero: that the return on equity that investors demand would remain the same no matter how much equity a bank raised. Admati and Hellwig think that view is quite wrong. They accept that there may be 'market frictions' that stop the Modigliani-Miller offset being total, but believe that those frictions in no way justify current low levels of equity.

Admati and Hellwig also distinguish sharply between two different meanings of the 'cost' of different ways of banks funding themselves: the private cost, borne directly by banks; and the social cost, which also includes the cost of bank failures and of bailouts. It's perfectly possible, they suggest, that from the latter viewpoint equity isn't any more expensive than debt. To any banker, it's an outrageous proposition, but it's worth noting that their book has been endorsed by Mervyn King, outgoing Governor of the Bank of England, with an enthusiasm not normally found in the public statements of central bankers: "At last! Two eminent economists explain in plain English what is wrong with banks and what needs to be done to make them safer."

In 2011, a team at the Bank of England led by David Miles (a financial economist who is an external member of the Monetary Policy Committee) estimated empirically the size of the Modigliani-Miller offset for UK banks. Their baseline

result is an offset of 45 percent. If that's right, bankers are correct in thinking that raising additional equity would be more expensive than taking on debt, although the increase in the cost of capital would be only just over half as much as they seem to think.

Crucially, however, Miles and his colleagues also estimated the benefit of increased levels of equity: the reduced probability of banking crises. Basel III, they conclude, sets equity levels 'well below what the results suggest is optimal'. Something around twice the Basel III equity requirements (in other words, around 20 percent of risk-weighted assets, or about 10 percent of total assets) is what's needed to achieve the best balance of costs and benefits.

Banks with that level of equity could start to seem quite different from today's fragile institutions, and banks with the level called for by Admati and Hellwig (20-30 percent of total assets, several times the Basel III requirement) certainly would. The state might still have to stand behind the banking system – unthinkable catastrophe is always possible – but the system could be robust enough to survive a repeat of a thinkable disaster such as 5 percent losses across the system's assets. The taxpayer subsidy would therefore be much lower.

Suppose a new international agreement – 'Basel IV' – were to demand banks move to substantially higher equity levels, or even that individual countries did that. (Switzerland, which shares with Britain the problem of having banks that are huge relative to the size of its economy, is already insisting on capital ratios that are tougher than Basel III, the so-called 'Swiss finish'.) How feasible would it be for banks to meet increased requirements for equity without fresh state injections of capital?

The basic problem is that the institutional investors who buy big blocks of bank shares were badly burned by the crisis (as noted above, debt holders got bailed out, but not shareholders). They fear that if they put their money into buying new shares, they wouldn't be rewarded with a commensurate increase in the value of their holdings: new equity capital might be swallowed up by losses that banks haven't yet owned up to, and it might simply make existing bank debt safer without making their shareholdings worth more. More generally, there's widespread distrust amongst investors of banks and their opacity. As one investment analyst told *Risk* magazine, 'It is enormously difficult for outsiders to understand what is going on in banks. How can I forecast earnings if I don't understand the balance sheet?'

However, these factors aren't new, and banks were often able to raise new equity in the teeth of the crisis when they really had to. Doing it under current circumstances, when bank shares have risen considerably over the past few months, would be easier. Ultimately, though, banks that need to raise large amounts of new equity from investors at a reasonable price may have to make themselves 'understandable' by such investors. That is likely to involve simplifying their business models considerably, an outcome that would be desirable in any case, given the contribution of complex products and processes to the crisis.

A surprising amount, furthermore, could be achieved without raising new equity. Banks continually leak money, especially via bonuses to their staff and dividends to shareholders. (For example, Admati and Hellwig point out that the dividends paid out by US banks in 2007 and 2008 were equal in size to around half the bailout funds they then needed just a few months later.) If profitable banks simply replaced cash bonuses with new shares and paid scrip dividends (these are dividends paid not in cash but in newly-created shares) they would, over a period of a decade or so, bolster their equity levels quite considerably.

I'd even be prepared to make my own modest contribution to the process. I own 51 shares of Lloyds Banking Group, which I inherited from my mother. My parents were teachers in the little village of Golspie, on the North Sea 50 miles beyond Inverness. Having reached adulthood during the Great Depression, they were diligent savers and feared debt. The grey stone house I was brought up in was rented, cheaply, from Sutherland County Council. My parents took on a mortgage only when well into their fifties, and while I don't know how big a deposit they put down, I wouldn't be surprised if it was as much as 50 percent.

My mother received the shares I now own when the Halifax Building Society demutualised in 1997. Its merger with the Bank of Scotland turned them into HBOS shares, and the latter's near-failure in 2008 made them shares of Lloyds. My parents didn't live to see 2008's debacle, but I'm sure they would have been horrified by the recklessness and hubristic over-expansionism that lay behind it.

Lloyds is now headed by António Horta-Osório, who seems like a brave man. Just over a year ago, he returned to this very public role after his health had been widely discussed in the financial press. Prolonged insomnia – several nights entirely without sleep – had forced him to take a break from work and check into the Priory. Now back at his desk, he seems to be making a decent job of repairing his damaged bank.

I promise you this, Mr Horta-Osório: if you want to raise more equity to make your bank safer, I'll add to my little stake. In return, though, I've a request of you. Pay as little cash in bonuses as you can, and don't give me any cash dividends, not now, and not any time soon.