



BANK OF ENGLAND

# Speech

---

## **Banking reform and macroprudential regulation: implications for banks' capital structure and credit conditions**

Speech given by

Paul Tucker, Deputy Governor Financial Stability, Member of the Monetary Policy Committee, Member of the Financial Policy Committee and Member of Prudential Regulation Authority Board

At the SUERF/Bank of Finland Conference, 'Banking after regulatory reform – business as usual', Helsinki

Thursday 13 June 2013

Many thanks for input and conversations to Steve Cecchetti and Anil Kashyap and, at the Bank, James Benford. For secretarial support, to Sandra Bannister, Alexandra Ellis and Vicky Purkiss.

Although the current reform programme rightly extends to the capital markets –over-the-counter derivative markets, clearing houses and shadow banking for example – nevertheless banking is at its core. So today I am going to draw out some of the implications for the credit system – starting with the micro regulatory regime and banks' capital structure; and then moving on to the introduction of new *macroprudential* policies and their effect on credit conditions.

### Micro regulatory reform and banks' capital structure

At a micro-level, the banking reforms have two important components. A step change in regulatory requirements on capital, leverage and liquidity, in order to reduce the probability of banks failing. And recognising that failure cannot and should not be ruled out, establishing credible and effective resolution regimes. Separately and in combination, they will change how the risks in banks' portfolios are distributed across shareholders, bondholders, depositors and, perhaps most important, taxpayers.

#### *Resolution regimes: rolling back the implicit subsidy from the state*

The most fundamental effects prospectively flow from making orderly resolution credible for the largest and most complex firms. Funding costs for any banks where bailout was still confidently expected would be heavily subsidised, as in the past. Where there was uncertainty, there would tend to be somewhat subsidised funding combined with a bias to shorter-term financing which could run at signs of trouble. But such 'regimes', if they merit that description, are unsustainable. Policy is clear: taxpayers should not provide solvency support to banks. Instead, losses exceeding a bank's equity base should fall on bondholders and other uninsured creditors, in line with the creditor hierarchy that would apply in bankruptcy.<sup>1</sup>

Other things being equal, exposing the holders of bank bonds to risk will tend to increase the overall cost of finance for banks during normal times compared with the past. Earning a fixed return but exposed to downside risk, investors in, especially, longer-term debt will be a source of market discipline. That is likely to incentivise banks to be better capitalised than in the past – through some combination of less levered balance sheets and less risky business activities. For society at large, the counterpart is that, with a lower probability of failure and credible plans in place to resolve banks without recourse to public funds, government bond yields should be lower than otherwise and the public finances more resilient.

#### *Re-regulation of the capital structure*

What about the effect of the reforms to the regulatory-capital regime? They affect the distribution of risk between the holders of bank equity and the holders of bank debt of various kinds.

---

<sup>1</sup> For an outline of the keys steps necessary to further the progress already made by the international regulatory community on resolution since the crisis, see Tucker (2013), 'Resolution and the future of finance'.

When fully implemented, and taking into account equity surcharges of up to 2.5pp for systemically important institutions, Basel 3 increases equity capital requirements by almost an order of magnitude.<sup>2</sup> That means that, in future, banks will be able to absorb bigger losses while remaining a going concern. In other words, more of the risk in bank portfolios is being pushed onto shareholders, leaving less with the creditors. But perhaps less clear is the impact on banks' overall funding costs.

Will there be any effect at all? Over 50 years ago, Modigliani and Miller famously showed<sup>3</sup> that, under certain restrictive conditions, a firm's overall cost of funds does not depend on how it is financed. Equity is more expensive than debt finance, because it absorbs losses first. Increasing the proportion of a firm's balance sheet funded by equity increases the share of that higher-cost form of financing. But it reduces the risk to debt-holders, causing debt-financing costs to fall; and the cost of each *additional* unit of equity also falls as the balance sheet becomes less levered. The Modigliani-Miller proposition is that the two effects offset exactly, leaving the overall cost of finance unchanged. The argument is simple: so long as the returns on a firm's portfolio of assets – ie its business – do not vary as its financing structure changes, the total cost of its funding is invariant to how those returns and risks are divided up between shareholders and debt-holders.

If that were true, there would be no cost to banks, or to the real economy, from ever higher equity requirements. Nor – and this point is rarely made – would there be an objection to the opposite: ever higher leverage in ever more thinly capitalised banks. In reality, a number of features of the real world break the Modigliani-Miller result.

As for all firms, interest paid by banks on debt is deductible from corporation tax, which reduces the cost of debt relative to equity. Other things being equal, the average cost of funding can therefore be reduced by issuing debt. That cost advantage should be largely passed on to customers.<sup>4</sup>

In addition, banks are special in that they fund themselves with retail deposits, which provide monetary services: the nature of banks' liabilities are central to their business, not just how their business is financed. Many of those deposits are protected by guarantee schemes. Interest rates on transactions deposits are, therefore, not especially sensitive to the risks a bank is running, making it cheaper for banks to fund themselves via this particular form of debt finance. Unlike a normal firm, part of the value of a bank does depend upon its capital structure.

---

<sup>2</sup> Basel 2 in effect required a minimum equity capital ratio of 2 percent. But under Basel 3 there is a greater focus on the equity that is truly free to absorb losses. As such, almost all regulatory deductions from capital are to be made from equity rather than being split across tier 1 and so-called tier 2 'capital' or made from total 'capital'. Also, some risk-weights are increased; for example, on counterparty credit risk exposures. Together those changes mean that an old Basel 2 core tier 1 minimum risk-weighted asset ratio of 2% is equivalent to around 1% on a Basel 3 basis. Taking into account the capital conservation buffer and the surcharge for systemically important financial institutions, for the largest banks the Basel 3 equity minimum comes to around 10% (plus any Pillar 2 buffers).

<sup>3</sup> For the original paper, see Modigliani and Miller (1958), 'The Cost of Capital, Corporate Finance and the Theory of Investment', *American Economic Review*, 48, 261-97. Later papers by the same authors addressed the implications for their result of tax, bankruptcy costs etc.

<sup>4</sup> This assumes a bank's post-tax return on equity is determined, given the riskiness of the bank's business, in competitive global capital markets, with excess returns competed away. That implies that a fall in tax burden due to higher debt financing is passed onto banks' customers.

There is also a deeper point here about the wider benefits to the economy of the maturity-transformation services delivered by banks financing their longer-term loans with monetary liabilities. Under fractional-reserve banking, combining the provision of both demand deposits and committed lines of credit, banks offer liquidity insurance to their customers.<sup>5</sup> That enables households and firms to economise on stocks of liquid savings, releasing more of the economy's savings to the risky projects that help drive growth over the long term. There are social benefits from deposit-financing of banks.

But not everything about banks points towards more leverage, or towards taking on leverage via regular debt rather than monetary deposits. Most obviously, Modigliani-Miller assumes that there is no difference between, on the one hand, shareholders bearing losses through lower dividend payments and, on the other hand, a firm's creditors bearing losses through the bankruptcy proceedings that follow default or insolvency. This is manifestly not true for banks.

First, as a bank approaches the point of failure, short-term funds will tend to run, with the value of its assets reduced by forced sales to generate liquidity. Second, beyond the point of failure, there are substantial costs – and not only the fees of the administrators, which are common to the bankruptcy of firms of all kinds. Crucially, bankrupt banks find it harder to collect their debts and to enforce contracts; counterparties will close out derivative and repo contracts if they can. The funds diverted to those counterparties reduce the amount available to others, intensifying the scramble to get to the front of the line. For non-financial firms, an automatic stay mitigates a disorderly destruction of value. But banks are in the business of circulating funds and cannot function under a persistent payment freeze. There are also wider economic costs. Smaller firms without easy access to public debt markets face switching costs if they have to establish new banking relationships. While they are searching for new credit, they are likely to cut spending, adversely affecting the economy.<sup>6</sup> Failure therefore brings substantial costs, for both the failed bank's creditors and wider society. The equity owners need not internalize all these costs so debt finance should carry a risk premium, incentivising equity to be preferred over debt, ie lower leverage.<sup>7</sup>

Taken together, these various departures from Modigliani-Miller's simple world mean that a bank's overall funding costs do depend on its capital structure, but in a non-linear way. So long as a bank's capital buffer is sufficient to make the perceived probability of bankruptcy remote, the bank will most likely want to economise on equity, if only for tax reasons. By contrast, if capital levels are too thin, bankruptcy will be a real possibility. Economising on equity capital is then likely to prove counter-productive as debt-holders, with an eye to the costs of resolution or liquidation, will demand ever higher rates of interest.

---

<sup>5</sup> See Kashyap, Rajan and Stein (2002), 'Banks as liquidity providers: an explanation for the coexistence of lending and deposit-taking', *Journal of Finance*, vol, 57(1), pp. 33-73.

<sup>6</sup> See Kashyap, Lamont and Stein (1994), 'Credit Conditions and the Cyclical Behaviour of Inventories', *The Quarterly Journal of Economics*, Vol 109, Issue 3 (Aug. 1994), P565-592. That bank failure itself has wider spillovers, through impaired credit availability, is itself another departure from Modigliani-Miller, which assumes that all households and firms have symmetric access to credit markets.

<sup>7</sup> In addition, the management of the bank will find themselves out of a job. In contrast to the managers of failed firms in other sectors, they face regulatory hurdles to re-entering the industry. That provides a clear incentive to avoid a fragile capital structure. As widely discussed, that needs to be reinforced by remuneration packages that expose their wealth to downside risks. Agency issues internal to banks are not covered in my remarks today. For a discussion of those agency issues, see Tucker (2013), 'Competition, the pressure for returns and stability', a chapter in book edited by Dombret and Lucius (2013), *Stability of the Financial System: Illusion or Feasible Concept?*.

Whether it is liquidation or resolution that beckons makes a difference, as resolution can materially reduce both the private and social costs of bankruptcy. Relative to a world in which liquidation is a credible threat, having an effective resolution regime will tend to reduce the cost of bond finance and so increase its share in the capital structure. But as explained earlier, it will tend to raise the cost of bonds and reduce their share in the capital structure relative to a state of affairs in which government bailouts are confidently expected. Effective resolution regimes are, therefore, necessary to give bank investors and managers incentives to adopt a prudent capital structure.

But even then a bank's private choice of capital structure will not deliver a satisfactory outcome for society as a whole due to the spillovers and negative externalities of failure. Resolution can help to reduce those spillovers, but banks must be required to have an overall capital structure that makes orderly resolution feasible. I shall return to that after bringing in another set of considerations.

### *Costs of raising equity*

So far this discussion has essentially been what economists call an exercise in comparative statics: would you choose to finance a new bank mainly with debt or mainly with equity? I have skated over what happens when a firm thinks about changing its capital structure. There are two issues.

The first arises from asymmetric information. That can make equity issuance expensive if investors worry that a new issue signals that management believe the share price is too high, ie the assets and earnings streams are worth less than the market has thought. That can occur even if a bank was not in jeopardy, just not as well capitalised as it should be. One way of overcoming this is for the prudential regulator to make a firm raise the required equity capital once the deficit is identified. Another way might be for banks to issue so-called *high-trigger* contingent capital instruments (CoCos), ie bonds that convert into equity if a bank's capital ratio falls below a prescribed but reasonably high level. In steady state, for a bank with a minimum equity ratio of 10%, that trigger might be, say, 8%: sufficiently below the required level for the insurance provided by these CoCos not to be prohibitively expensive, but sufficiently high that the bonds would convert to equity while the bank was still able to fund itself in the market.<sup>8</sup>

The second, and in some ways bigger, issue relates to the problem of a debt-overhang<sup>9</sup>. Suppose, due to a marked deterioration in the macroeconomic environment, a bank's equity base, even after the conversion of high-trigger CoCos, is revealed to be too thin to cover the risks in the business. Debt spreads rise and, in consequence, the value of bonds in issue falls. An injection of fresh equity would increase the value of the business, by reducing the probability of bankruptcy. But since bond-holders ultimately pay the bankruptcy costs, they and other creditors would be the main beneficiaries of recapitalisation: there would be a transfer of resources

---

<sup>8</sup> The capital ratio in the trigger would need to be based on the Basel 3 definitions applying at the end of the transition period.

<sup>9</sup> See Myers (1977), 'Determinants of Corporate Borrowing', *Journal of Financial Economics*, 5, 147-75.

from equity holders to bond holders. Shareholders in a poorly capitalised firm have an incentive, therefore, to keep their hands in their pockets and gamble that the economy, and with it their bank, improves.

A particular problem could arise if losses were large enough to exhaust any high-trigger CoCos, leaving the bank undercapitalised, but not so severe that solvency was in the balance. By limping on and deleveraging, the bank's supply of credit to the economy would be impaired. An option to force a recapitalisation in such circumstances might be CoCos with *low* triggers. But the bank might suffer a run, becoming unviable and requiring resolution, before its measured capital ratio fell through the instruments' trigger point. Any such bonds must, therefore, convert into equity and take 'first loss' upon entry into resolution. That is, I think, the best way of thinking about so-called Point-Of-Non-Viability (PONV) instruments counted towards "total capital" in the current Bank Capital Accord.<sup>10</sup>

### *A Capital Accord for the future*

In summary, the system cannot be relied upon to recapitalise itself as the probability of failure rises. There is, therefore, a premium on getting micro-prudential rules for minimum capital broadly right rather than, as happened in the past, badly wrong. On the one hand, if the equity cushion proves to be too thin, the system might well fall over. On the other hand, if banks are forced to hold too much equity, there is a risk of choking off the truly valuable liquidity services that deposit-taking banks provide to the economy.

Looking ahead, this analysis points to the general shape of a richer regulatory Capital Accord for the future – one that distinguishes more carefully between the different phases of a bank's life and death.

Regulatory intervention is plainly required to set a minimum level of equity to provide sufficient *going-concern* loss absorbency. That is the core purpose of the existing Basel 3 Accord. But it is not enough. We also need to regulate for a minimum level of term bonded debt to provide *gone-concern* loss absorbency.<sup>11</sup>

In effect, in return for the private cost saving due to the tax regime, the authorities would be mandating *term* bond issuance of a minimum quantity from prescribed parts of banking groups in order to make resolution feasible. Contrary to some of the academic literature, this gives value not to *short-term* debt on the basis that it can run and so acts as a disciplining mechanism, but rather to *longer-term* bonds. They can absorb losses, helping to recapitalise the firm in resolution; and can thus be a source of market discipline through price and rationing.<sup>12</sup>

---

<sup>10</sup> Total capital is in quotation marks here because this is not capital in the same sense as equity.

<sup>11</sup> I have argued before that the minimum for *gone-concern* LAC should not be less than a banks' equity requirement. Otherwise upon insolvency, it cannot be recapitalised back to the regulatory requirement. See page eight of Tucker (2013), "Resolution and Future of Finance."

<sup>12</sup> See Admati and Hellwig (2013), "Does Bank Debt Discipline Bankers? An Academic Myth about Bank Indebtedness". While Admati and Hellwig point out the deficiency of short-term debt as a source of market discipline, they pay insufficient attention to longer-term debt given its role in recapitalising banks under resolution.

That might be enough. I would expect, for example, that package to incentivise banks and their investors to issue and buy securities with conversion features that helped them through recovery or resurrection *without* the intervention of, respectively, the regulators or the statutory resolution authority.

Alternatively, a richer Accord might go further, mandating so-called *high-trigger* CoCos, so as to encode recovery measures into a bank's capital structure. And it might even include *low-trigger* instruments to aid resurrection when a bank had seriously impaired equity but was not on the brink of bankruptcy. Taken together, that would be a robust Accord for normal times (equity); for recovery (high-trigger CoCos); for resurrection (low-trigger CoCos, or PONV instruments); and for resolution (term bonded-debt issued from the top of the group).<sup>13</sup>

### Macroprudential regimes and the cost of finance

Are reforms to resolution regimes and capital requirements – even a more complete Capital Accord along the lines I have sketched for almost the entire capital structure– sufficient to preserve systemic stability? The clear answer of the authorities to that is they are not sufficient, which is revealed by our creation of macroprudential regimes. That is for two reasons.

First, any realistic regulatory capital regime, however rich, will sooner or later be found wanting due to regulatory arbitrage or an economic environment that is more risky than anything contemplated when it was calibrated. The authorities need to be able to respond to the system's evolving structure, or temporarily tighten capital requirements while the especially threatening circumstances last.

Second, behaviour within the financial system itself can generate elevated risks. And that tendency towards exuberance is not solely down to moral hazard.

Quite apart from TBTF, another driving force comes from myopia – a tendency to overlook risks in banking during buoyant conditions.<sup>14</sup> Eventually risk does crystallise, prompting bankers and investors to wake up to the overvaluation of their assets and excessive leverage in the system. Credit tightens, exacerbating the macroeconomic downturn, and so on. Solving the TBTF problem is absolutely necessary but will not be sufficient to consign boom and bust to the past. Banking systems comprising lots of small banks have been capable of driving themselves over the cliff.

For regulation to respond dynamically to changing circumstances in order to preserve systemic stability, macroprudential policy is needed. In the United Kingdom, the primary objective of the new Bank of England Financial Policy Committee (FPC) is to protect and enhance the resilience of the UK financial system, with a subordinate objective of supporting growth and employment. As well as being able to make Recommendations to

---

<sup>13</sup> Or, more accurately, from whichever parts of the group were going to be resolved together as a unit under the preferred resolution strategy. See forthcoming Guidance from the Financial Stability Board.

<sup>14</sup> See Gennaioli, Shleifer, and Vishny (2012). "Neglected Risks, Financial Innovation and Financial Fragility." *Journal of Financial Economics* 104, no. 3: 452-468; and Tucker (2011), *Discussion of Lord Turner's lecture "Reforming finance: are we being radical enough?"*. Clare Distinguished Lecture in Economics, Cambridge.

the UK prudential supervisors and securities regulators on anything relevant to stability, Parliament has given the FPC power to *direct* changes in capital requirements for banks.

### *Macroprudential tools and system resilience*

In some ways, the effects of a temporary change in macroprudential capital requirements will be similar to a permanent change in the capital regime. An action to increase banks' equity base by, say, 10% will increase their loss-absorbing capacity by 10%. That leaves the system better placed to cope with losses should they crystallise.

As such, irrespective of whether the action dampens the boom phase of the credit cycle, it will reduce the severity of the bust. Fewer, if any, banks will fail; a tightening in credit supply is therefore less likely to become a full-blown credit crunch; the resulting slowdown in output growth should be less severe; the default rate on bank loan portfolios lower; and so on. I rehearse that because the primary objective of a macroprudential intervention – improving the financial system's resilience – can be progressed even if the credit boom itself is not tempered much.

### *Macro-prudential measures and credit conditions*

Nevertheless, whether macroprudential interventions could quell a credit boom is important. That turns largely on the effects on the cost of finance. I worry that too much of the analysis of this area is oversimplified, assuming blandly that an increase in capital requirements will always and everywhere lead to tighter credit conditions, and so slow the boom. I would be surprised if that were a universal law.

A required substitution to more expensive equity finance will, indeed, tend to push up banks' funding costs, but the effect on *overall* funding costs will depend on whether, and by how much, debt financing costs fall due to a lower probability of bankruptcy.

Crucially, there is an important difference between, on the one hand, banks having to have more equity in steady state and, on the other hand, an intervention by a macroprudential body to increase capital requirements temporarily. The macroprudential body's policy action will reveal information. Borrowing some language from the literature on monetary policy, it sheds light on the policymakers' views on the current risks to stability (the state of the economy and/or the financial system itself), and also on how the Committee reaches policy decisions (its reaction function).

A few examples serve to illustrate the point (**Figure 1**).

A first distinction is between interventions in the boom and bust phases of a credit cycle. Imagine that some information came along to suggest that the banking system, while adequately capitalised currently, will taken as a whole be stretched down the road if credit continues to expand rapidly. Assuming for the moment common

information to the market and the authorities, in this case a macroprudential intervention to require banks to build up capital in order to underpin their resilience in the period ahead might add only a shade to the cost of finance, as banks lose a small proportion of their tax shield. And if banks choose to de-lever, shedding risk to achieve the temporarily higher capital requirement, that action in itself might slow the boom.

Now imagine a scenario in which information came along to reveal the system was seriously under capitalised right now. Maybe a bubble had gone unnoticed until it burst or some banks or funds unexpectedly fail, revealing inadequacies in the regulatory regime. Once the market came to appreciate that capital levels were too thin, funding costs would rise sharply. In those circumstances, an injection of additional capital, if it could be achieved, could help to bring financing costs back down. Although reliance on relatively expensive equity would be increased, that is dominated by a large fall in the cost of debt finance as failure becomes a more remote possibility.

In this hypothetical scenario, the policymaker has something of a tightrope to walk. For an individual bank, cutting risk exposures by reducing lending might at first blush seem to be a step towards restoring capital adequacy. For the system as a whole, however, it would clearly be counterproductive for all banks to delever in that way. The better path, not only for economy but for individual banks as part of the financial system, would be for banks to strengthen their capital structure so that credit supply was not impaired.

A second distinction is between the market and the macroprudential policymaker having the same information and views on what ought to be done (Column 1, Figure 1) and their having different information and views.

Most interesting are those cases where the market and the FPC are out of synch. Suppose the market spotted first that the system was dangerously under capitalised. Banks' debt funding costs would rise sharply and would remain elevated until the market saw evidence that either the banks or the authorities were grasping the nettle. A belated but decisive action to raise capital levels would then come as welcome news (Column 2, Row B). Funding costs should fall back, perhaps significantly, and credit conditions could well ease. That would take some of the edge off the downturn. I want to stress that in this particular hypothetical scenario, an increase in capital requirements has the effect of easing credit conditions.

**Figure 1: Impact of an increase in capital requirements by the Financial Policy Committee**

		View of Market on FPC’s assessment of system capital adequacy			
State of business and credit cycle		(1) Agrees and expected FPC action	(2) Ahead of FPC	(3) Behind FPC (but when FPC acts, worries it may not have done enough)	(4) Shares FPC’s information but disagrees that system lacks capital
	(A) Boom		Debt spreads broadly unchanged	Debt spreads fall	Debt spreads potentially rise
(B) Bust		Debt spreads broadly unchanged / fall slightly	Debt spreads fall significantly	Debt spreads potentially rise, could exacerbate downturn	Debt spreads broadly unchanged

Note: Coloured shading indicates direction of change in overall financing costs, and hence likely impact on credit conditions. Blue (red) denotes a fall (rise) in overall financing costs and hence an easing (tightening) in credit conditions.

Alternatively, the FPC might spot the risk to the system ahead of the market. Debt and, consequently, credit spreads might have been low for some time, with some sectors of the economy taking the opportunity to lever up. Having failed to spot the risks early, the FPC moved to require more capital in the system only once the credit cycle had turned. For its part, it was only upon seeing the FPC’s action, that the market became alive to the risks. It is possible that, having woken up, the market, though somewhat reassured that some action is being taken, worries that the FPC has not done enough. In that case, debt spreads might rise at the same time as banks switch towards more expensive equity financing (Column 3, Row B). Credit conditions could tighten, slowing the economy and so exacerbating the situation.

A final variant (Column 4, Row B) would be that although the market and the FPC share the same information set, the market thinks an increase in capital requirements is unnecessary. In that case debt spreads, having already been low given the market’s view of the risks, would not fall. Firms overall funding costs might even rise slightly, given the required switch to more expensive equity financing. But, crucially, the system would be more resilient and any eventual bust should be less severe.

These examples serve to illustrate that it is unlikely to be as simple as: a rise in capital requirements entails tighter credit conditions. Where there are question marks over the system’s capital adequacy, the reverse can sometimes be true. More generally, the first round effects on credit conditions will depend upon whether the policymaker’s actions revealed information about the state of the system and its approach to policy, and on whether the market regarded the actions as warranted, insufficient or too much. Overall, this underlines the importance of transparency – from banks and from the macroprudential policymaker.

## Conclusions: The implications of reform for the shape of finance

Cyclical fluctuations in credit conditions and macroprudential interventions to influence them will not play out in an unchanged financial system. In fact, it would be surprising if the market's own response to the crisis and the regulatory reforms did not drive structural changes in the credit system. The shape of some can perhaps be discerned.

Too-Big-To-Fail effectively subsidised longer-term bond finance for banks. Combined with lax liquidity regulation, this probably left the sector as a whole with larger and longer-maturity asset portfolios than otherwise. A few decades ago we used to talk about government crowding out the private sector from the capital markets. Well, the bloated balance sheets of TBTF firms essentially crowded out other long-term investors from parts of the credit markets. Unlevered sources of funds struggled to compete with the banks, but instead held lots of bank paper, thinking it risk free. Competitors to the banks had to lever up: fragile shadow banks were one result.

Actions to remove the subsidy from banking will, amongst other things, create conditions in which the relative role of unlevered capital market investors can grow. Some of that might come through securitisation, although a mature and resilient market in ABS of loans to SMEs might well require initiatives to produce rich data sets on credit histories. The time may have come to evaluate the utility of the central credit registers that have long existed in some continental European and Asian countries.

None of that, however, can alter banks' core comparative advantage as monetary institutions: the provision of liquidity through overdrafts, lines of credit and other working capital facilities. That role might be aided by a revival of a market in trade credit.<sup>15</sup>

Banks will always be levered because their core monetary service revolves around transaction-account deposits, which are debt liabilities. And, on the other side of the balance sheet, they will always have somewhat risky asset portfolios because being a monetary institution makes them an efficient supplier of short-term finance to households, firms and the rest of the financial system.

But they can do all that only if they are healthy and prosperous: only sound banks can make a credible promise to repay or lend money on demand.

The fragility in banks' balance sheets is why they are regulated. Today, I have sketched the outline of a Capital Accord for the future. An Accord that would go beyond reducing the probability of failure, by also addressing the need to cope with distressed banks, ensuring that resolution can be orderly. Taking the tax-deductibility of debt interest as a given, the banking authorities can make it beneficial to society as a whole, not just to private interests, by requiring that a minimum level of term bond finance be part of the capital structure. That would

---

<sup>15</sup> I worry about the withering away of a market for bankers' acceptances; claims by one company on another, but guaranteed by one or more banks, and historically eligible for discount at central banks. As I have said before, corporate treasurers, bankers and central banks could usefully work together on this. See Tucker (2012), 'Credit conditions for firms: stability and monetary policy.'

provide gone-concern loss-absorbency for new improved resolution regimes to draw on. A still richer Accord might include instruments that aid recovery by converting into equity in the face of meaningful but not life-threatening losses. This approach moves away from seeing runnable short-term wholesale debt as a source of discipline on banks, to instead seeing longer-term bonds as providing a mass de manoeuvre for recapitalising distressed banks. Not all forms of leverage are the same.

But no static regime can ever be enough. If they were, crises would not recur. That is why the new macroprudential authorities, such as the Bank of England's FPC, will be able temporarily to adjust capital requirements when circumstances warrant. I have stressed that it is oversimplistic to think of macroprudential interventions to improve capital adequacy as always inevitably leading to higher funding costs and tighter credit conditions. It will depend upon the prevailing circumstances: whether the banks started out with solid balance sheets, what the market knows and thinks. The FPC will need to be transparent in order to build understanding of its actions.

More resilient banking systems will enhance the capacity of monetary policy to underpin growth in an economic downturn. And reduced financial system and macroeconomic risks should make the cost of finance less volatile, helping businesses and households to plan for the future. It will be a while before confidence in the system is restored, and never again should confidence be so blind. But if the destination lies further ahead, we do know where we are going. And that itself should be a source of strength, helping our economies to recover.