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BIG INNOVATION CENTRE

The Discouraged Economy

Will Hutton and Paul Nightingale

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The Big Innovation Centre is an initiative of The Work Foundation and Lancaster University. Launched in September 2011, it brings together a range of companies, trusts, universities and public bodies to research and propose practical reforms with the ambition of making the UK a global open innovation hub as part of the urgent task of rebalancing and growing the UK economy, and with the vision of building a world-class innovation and investment ecosystem by 2025.

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Executive summary

The creation of the Independent Commission on Banking (ICB) is part of the necessary rethinking of the structure and regulation of the British banking sector in the wake of the financial crisis. There is now an emerging consensus following the publication of the ICB's interim report that banks should both be required to hold more equity capital and to keep capital supporting retail and commercial banking at best separated (as achieved under the US Glass-Steagall Act) or at least robustly ring-fenced from their riskier activities in investment banking. The more ring-fencing can approach formal separation the more the risks of another banking crisis will be reduced.

The purpose of this paper, part of an ongoing study into the financial system supported by NESTA, is to offer a further dimension to the debate by highlighting an additional benefit that has often been overlooked. Separation/ring-fencing together with more capital will also change incentive structures to make supporting the UK economy and specifically lending to innovative SMEs more attractive. We provide strong evidence that British SMEs are being badly under-nourished by the current banking system, and suggest reasons why this is unlikely to change.

The current UK financial services sector has grown bank assets to more than four times British GDP – of which lending to UK corporates constitutes a mere 5 per cent of lending. Despite, or because of, this growth a key sector of the economy – the innovative British 'Mittlestand' – has been under-supported. This lack of support to SMEs encourages the perception among firms that should qualify for lending that they will not get credit, leading to significant numbers of discouraged borrowers, who thus don't seek loans. This lack of investment leads to reduced levels of innovation in the economy, and thus a self-reinforcing cycle of less innovation, less investment and less dynamism – creating a discouraged economy, particularly problematic at a time when the UK needs to do all it can both to grow and rebalance its economy.

Reform is further needed because of a growing disconnect between the financing needs of the UK's knowledge economy and the development of the financial system. Over 50 per cent of the UK's GDP and employment is now produced by technologically and knowledge intensive activities, a share that will increase in the future in common with all other industrialised economies. Financial expertise based on constructing ultra-complex financial instruments, property investment, and consumer credit is not always well-suited to meeting these new challenges.

The financial challenges of a knowledge based economy are very different to the conventional lending activities undertaken by UK banks today. Business investment in intangible knowledge based assets now comfortably exceeds investment in physical assets such as machines, offices, and equipment. Recent research has highlighted the

vital role of a small number of 'high growth' innovative firms in generating new jobs and driving innovation. These are the most likely to face financial restraints on their growth. For example, The Work Foundation's research using the Annual Small Business Survey (ASBS) found that in 2007-2008 about 27 per cent of SMEs showing sustained growth said that finance had been a problem, compared with 21 per cent of all other SMEs.

We present a range of evidence showing that while most firms with collateral eventually receive the funding they seek, banks are not lending to two groups of firms: higher risk firms who are being refused credit absolutely rather than being offered higher interest rates to reflect higher perceived risk and firms with growth ambitions and potential who do not have collateral. This reduces investment and produces a sub-population of discouraged borrowers – individuals and firms that have legitimate investment opportunities, and would be funded if they went to banks to ask for money, but believe that they would not be and as a consequence do not ask and do not get. The evidence is that these are more likely to be high growth, innovative firms.

These findings draw on academic research and a special survey of small firms undertaken by the Federation of Small Business for The Work Foundation report which shows that while the bulk of firms had not applied for loans of those that did only 41 per cent received all the funds they sought. Worryingly it shows that 37 per cent of the firms seeking funding were turned down. The implications of the squeezed financing was that 37 per cent of the turned down firms experienced ongoing financial concerns, 29 per cent missed growth opportunities, and 19 per cent delayed and 16 per cent scaled down their investment plans.

These problems are not being solved by market forces acting alone. Even a rushed 'emergency scheme' relationship-banking institution, set up by the Government, succeeded in lending to a sample of firms, 95 per cent of whom had been refused loans by high street banks, without any difference in loan default rates. The market does not self correct because the scale of current banking creates strong incentives for conformity to a single business model and substantial barriers to entry for new banks offering better services to SMEs. The subsidies given to large highly leveraged banks through implicit government guarantees – amounting to more than £100bn in 2009 – further constrains entry. In a highly concentrated industry, with other banks operating under the same business model, dissatisfied customers have nowhere else to go.

Requiring banks to carry increased capital while in addition requiring separation or as a second best tough ring-fencing between investment and retail banking, will not only help de-risk the UK financial system but stimulate lending to high growth innovative SMEs.

Higher capital ratios will lower risk premiums so that any rise in bank funding costs will be trivial. More importantly an environment will be created where SME lending is not seen as a consumer of scarce risk capital with a high opportunity cost of foregone investment banking opportunities, but where it is seen as a useful profit stream in its own right. The Swedish Handelsbanken, with 17 per cent tier one capital as defined by Basel Two, is growing its market share rapidly in the UK with such a structure. Reform would broaden the effect, challenging the business model that has grown up over the last 20 years in which SME lending has been the Cinderella that did not go to the ball.

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Chapter 1 Introduction

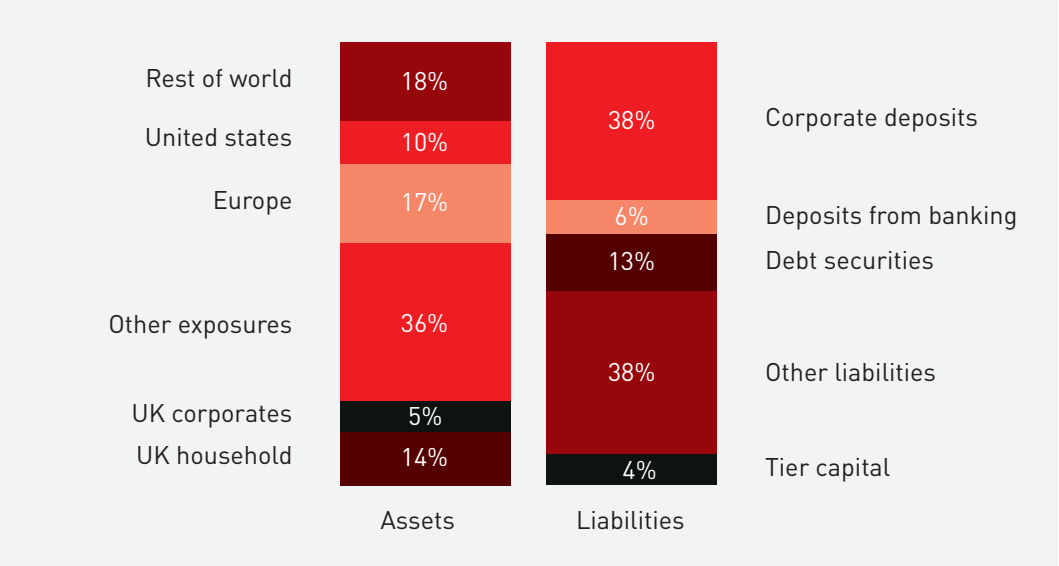
The creation of the Independent Commission on Banking (ICB) is part of the necessary rethinking of the structure and regulation of the British financial services sector in the wake of the financial crisis. There is now an emerging consensus following the publication of the ICB's interim report that banks should both be required to hold more equity capital to underwrite their lending and to keep capital supporting retail and commercial banking ring-fenced from their riskier activities in investment banking – although how the ring-fence would work and what would be in and outside it remains for debate. Some banks, such as HSBC, seem readier to embrace this substantial reform of the business model that has developed over the last quarter century since Big Bang than others – and have submitted a helpful paper to the Treasury Select Committee suggesting how ring-fencing could be organised. The purpose of this paper is to offer a further dimension to the debate, reinforcing the case for more capital and formal separation or hard ring-fencing that goes beyond merely subsidiarisation.[1] The more ring-fencing can approach formal separation as achieved under the US Glass-Steagall Act, the more the risks of another banking crisis will be reduced. Furthermore, we suggest that formal separation or hard ring-fencing has an additional benefit that has often been overlooked. It will change incentive structures to make supporting the UK economy and specifically lending to innovative SMEs more attractive. We provide strong evidence that British SMEs are being badly under-nourished by the current banking system.

The UK banking sector has grown bank assets to more than four times British GDP – of which lending to UK corporates constitutes a mere 5 per cent of lending (Figures 1.0 and 1.1). However this growth has entailed incurring both excessive systemic risks and under-supporting a key sector of the economy – the innovative British 'Mittlestand'. Lack of support to SMEs encourages the perception among firms that should qualify for lending that they will not get credit, leading to significant numbers of discouraged borrowers, who thus do not seek loans. This lack of investment leads to a self-reinforcing cycle of less innovation, less investment and less dynamism – creating a discouraged economy.

A well functioning financial system should have two key roles at its heart. It should channel savings into productive investment, carefully calibrating the risks and rewards of necessarily transmuting short term deposits into longer term loans while also providing a robust and trusted payment system. As Figure 1.0 shows the UK financial system has increasingly used these twin functions to support for the growth of other forms of financial intermediation – essentially to make money from money.

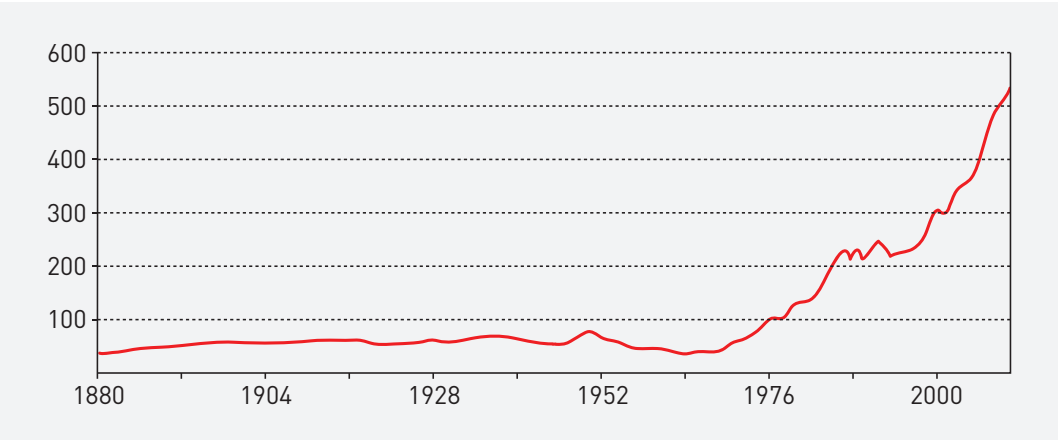
1 Subsidiarisation increases operational transparency, which is useful, but does not change the incentive structures in the current business model

Fig 1.0: Major UK bank's aggregate balance sheet as at 2010



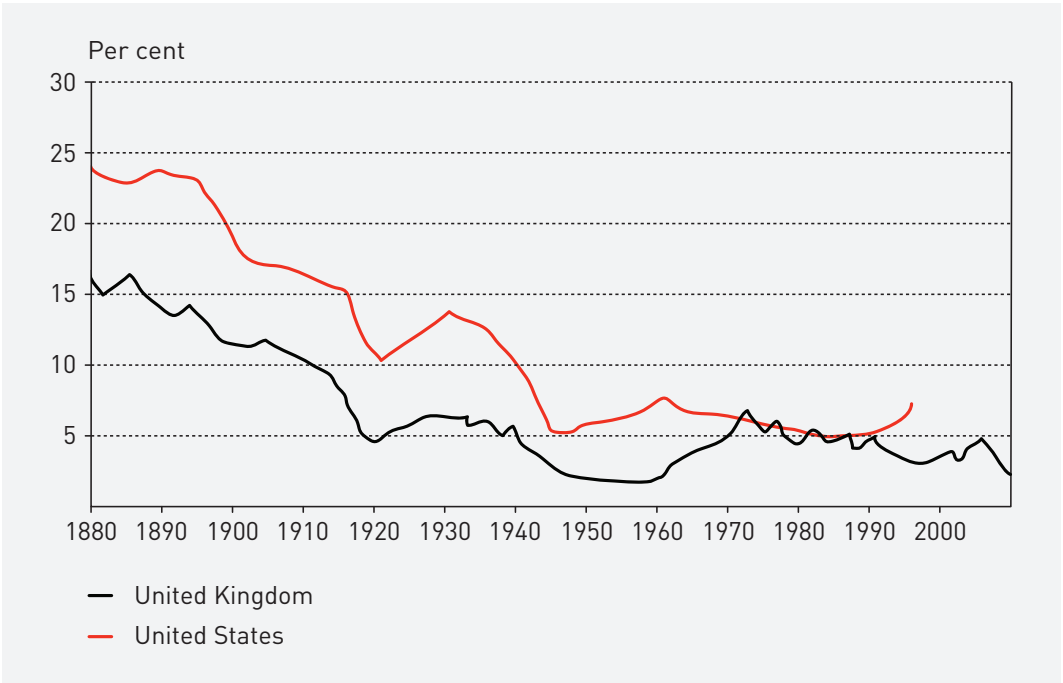
Source: Independent Commission on Banking (2011)

Fig 1.1: The growth of UK bank assets (per cent of GDP)



Source: Sheppard, D. K. (1971) and Bank of England.

Fig 1.2: Bank assets ballooned – but with falling capital ratios

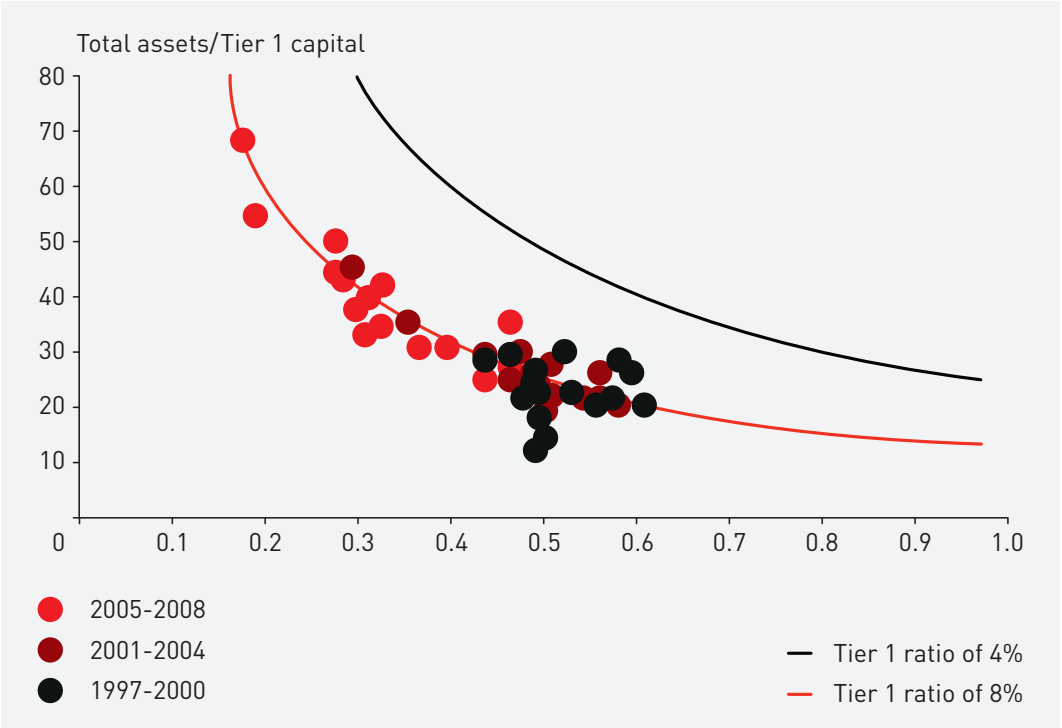


Source: US – Berger, A., Herring, R. and Szegö, G. (1995). UK – Sheppard, D.K. (1971), British Bankers' Association, published accounts and Bank of England calculations.

This balance sheet structure highlighted in Figures 1.0, 1.1 and 1.2 reflects changes in the operation of financial services. In particular, it reflects the substantial increase in leverage that has occurred over the last 20 years encouraged by the banks' belief that innovative new instruments, financed by debt, could manage the consequent risk effectively. Debt was also favoured by the tax treatment of interest and the explicit and implicit state guarantees to banks funding liabilities. According to the Bank of England these reduced banks' funding cost by over £100bn in 2009. Even in more normal periods, as the ICB's Annex 3 suggests, the annual subsidy is likely to be worth significantly more than £10bn a year.

However, while collateralized debt obligations (CDOs) and credit default swaps (CDSs) might mitigate tail risks for one bank's lending, they could not mitigate systemic risk for all banks; indeed when that risk emerged the wide use of such instruments increased rather than decreased the vulnerability of the banking system as a whole – especially when it had expanded its balance sheet without commensurate increases in its capital ratios. As Figure 1.3 shows the same assets became re-categorised as less risky after Basel 2 – suggesting banks have been plainly gaming the regulatory system. Even

Fig 1.3: Banks gamed the system – the same assets allegedly became a third less risky in a decade



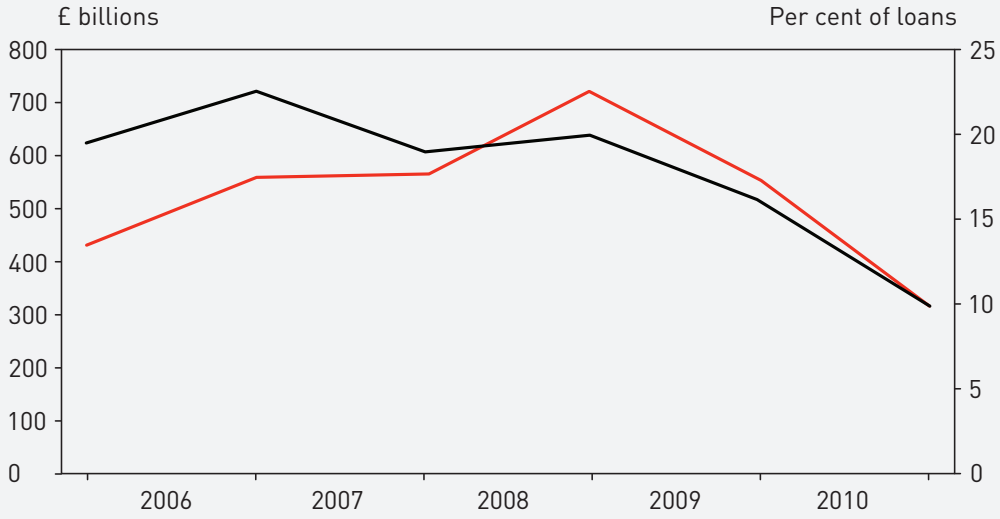
Source: Published accounts and Bank of England calculations

though the British policy response – a mix of liquidity provision, asset and deposit guarantees along with capital injections was proportionally larger than in any other advanced country, the crisis still induced a major recession. Despite fast and effective government action the UK recovery has been exceptionally subdued (on some reckonings the worse since 1830), with consumption constrained by the overhang of personal debt. Necessarily bank lending growth has been held back by both caution and the need to rebuild shattered balance sheets.

Recovery has also been hindered by the misallocation of resources in the run-up to the crisis. Britain's export sector has shrunk relative to the rest of the economy in part because of a prolonged period of sterling over valuation, itself in part caused by the inflow of foreign saving to close the savings gap as banks over-expanded their lending beyond Britain's domestic saving base to exploit the historically low costs of capital on international markets (see Figure 2.0 and 2.1). As a result there was persistent asset price inflation which encouraged parts of the UK economy that were not internationally tradeable – property, construction, retailing, financial services and real estate – to grow

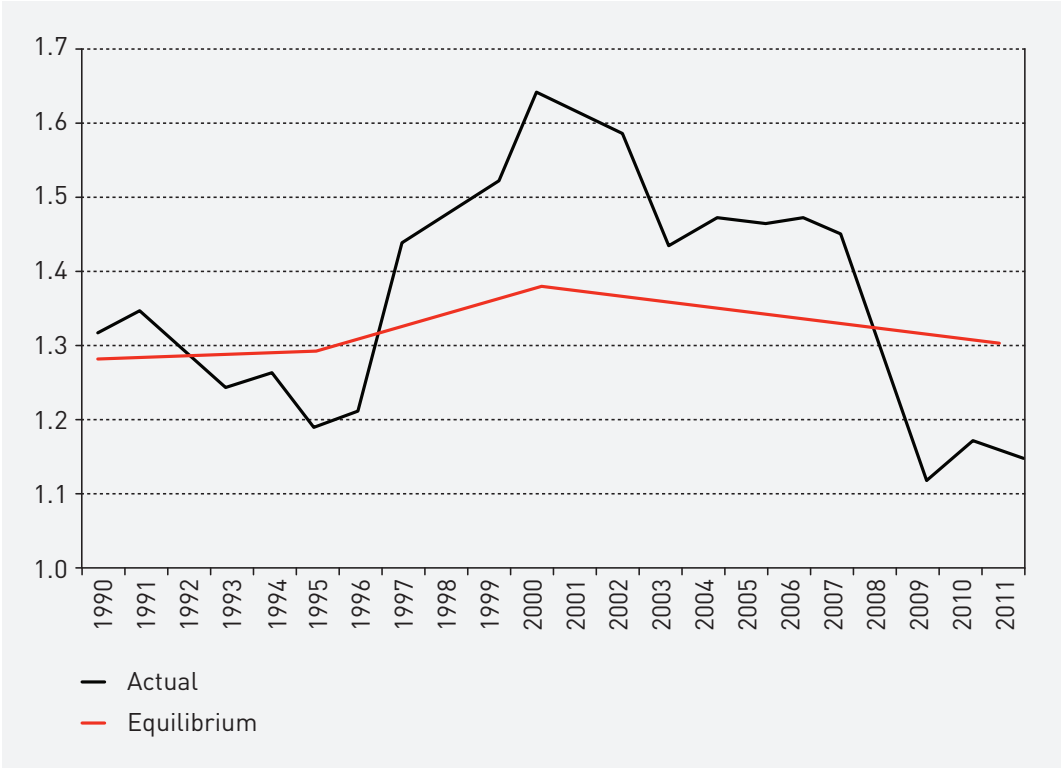
unsustainably large. These now have to contract, forcing restructuring as is occurring at present in British high street retailers, with loss of turnover, employment and of course tax revenue. When the bubble burst tax revenue shrunk by 2 per cent of GDP between 2007/8 and 2009/10, exacerbating the structural public deficit that had emerged with public spending growth pitched above Britain's true long term growth rate. Estimates of cumulative lost output before output regains the levels it would have reached had the recession not occurred and trend growth continued range upwards from 100 per cent of GDP (See Annex 2 of the Interim Report of the ICB 2011).

Figure 2.0 The customer funding gap emerges as British banks fund excessive lending with foreign savings – which then closes after the crisis



Sources: Published accounts and Bank of England calculations(Financial Stability Review June 2011

Fig 2.1: Sterling's actual exchange rate (v euro) compared to equilibrium

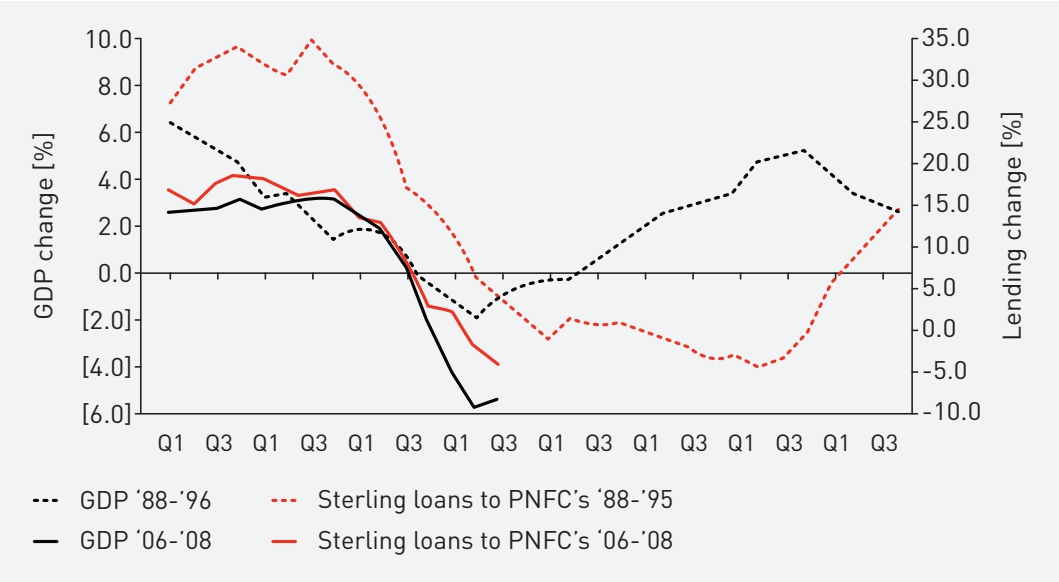


Source: based on figures provided to the authors by Professor Simon Wren-Lewis

The impact of this on the economy was substantial. In the six quarters that constituted the official recession since the beginning of the financial crisis in September 2008 UK GDP fell by 6.4 per cent, which represents roughly three years of trend-level economic growth for the economy.[2] The liquidity crisis and catastrophic collapse in interbank lending saw banks increasingly unwilling to lend. According to the Bank of England's figures net monthly business lending fell from £7.4bn in 2007 to an overall net repayment of £3.9bn in 2009.[3] Even if banks were prepared to lend, loan to value rates declined considerably, and costs increased for small firm credit to a median of 4 per cent over the base rate despite the base (interest) rates falling to 0.5 per cent (Cowling et al 2011).

2 Cowling and Oakley (2010) Economic Evaluation of the Transitional Loan Fund Scheme. BIS
3 See Bank of England Trends in Lending, April 2011

Fig 3.0: Sterling lending to PNFCs against GDP growth



Source: Bank of England

The figure above (Figure 3.0) reproduced from the Rowland Review shows how sterling lending to public non financial companies (PNFCs) has behaved in this recession compared to 1988 to 1995. The dotted lines, referring to the period 1988 to 1995, show that lending remained depressed in the last recession long after GDP had begun to climb. The lighter full line shows how GDP has fallen further and much more rapidly this time. Given the structural distortions in the system and the overhang of debt it would seem heroic to believe that the pattern of depressed lending will not be reproduced again despite the assurances offered by the banks in Project Merlin.

There is an additional need for reform because of a growing disconnect between the financing needs of the UK's knowledge economy and the development of the financial system. Over 50 per cent of the UK's GDP and employment is now produced by technologically and knowledge intensive activities, a share that will increase in common with all other industrialised economies. Financial expertise based on constructing ultra-complex financial instruments, property investment, and consumer credit is not always well-suited to meeting these new challenges.[4]

4 Levy, Sisson and Holloway (2011) A plan for growth in the Knowledge Economy: The Work Foundation

The financial challenges of a knowledge based economy are very different to more conventional lending. Business investment in intangible knowledge based assets now comfortably exceeds investment in physical assets such as machines, offices, and equipment. Recent research has highlighted the vital role of 'high growth' innovative firms in generating new jobs and driving innovation.[5] These firms can come in all sizes and cover all sectors, but of particular importance are the high growth SMEs. These are the most likely to face financial restraints on their growth. For example, Work Foundation research using the Annual Small Business Survey (ASBS) found that in 2007-2008 about 27 per cent of SMEs showing sustained growth said that finance had been a problem, compared with 21 per cent of all other SMEs.

Given these problems, the British banking system has been severely criticised for neglecting its core business – channelling savings into investment. The terms of reference of the ICB include not only examining ways to reduce the likelihood of another banking crisis but also to better ensure that customers' needs are efficiently served. In this submission we review some of the evidence on lending trends to business, and argue that customers' needs are not being efficiently served. We argue that in part this is because of the business model that banks have developed over the last twenty five years. The drive to use capital ever more efficiently to grow balance sheets with less risk-weighted assets without any separation between commercial, retail and investment banking has created a bias against lending to SMEs in general and to innovative SMEs in particular.

Of course across any business cycle there will be SMEs who complain that they have been refused credit; indeed there should be some firms who are disappointed in their credit demands – and it is good for the economy if low productivity firms are displaced by high productivity firms. However, our argument is that the experience of British SMEs goes beyond this. Why should banks use scarce capital to build up a portfolio of SME lending which is difficult to credit-screen and has a clearly established default risk which cannot be as easily re-categorised as having a lower risk weightings as other 'innovative' financial instruments can? The hypothesis that we are testing and which our early findings shows as having validity is that requiring banks to hold more ring-fenced capital will change the risk reward equation. If so this will not only make the financial system less vulnerable to shocks, it will rebalance incentives to make SME lending less unattractive.

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5 Levy, Lee and Peate (2011) Ready Steady Grow?: The Work Foundation and NESTA (2009) *The Vital Six Percent*

The basic facts behind this argument are not in dispute. The British banking system is highly concentrated, very transactional, highly internationalised and while most firms receive the funding they seek, a significant subpopulation is under-supported. What are in dispute are the implications. The banks insist that the current structure and pattern of regulation does not impair their ability to support SMEs. They suggest that all potential scope for lending to creditworthy customers is being used, and that the universal banking that they provide is good for SMEs. As a consequence, no fundamental reform is necessary. Representatives of small firms on the other hand, argue that banks are failing to support their members, restricting credit lines, renegotiating overdraft facilities and severely constraining lending. In particular the banking system is failing the small number of fast growing, high value-added SMEs which generate most innovation and new jobs – suggested by our findings cited above.

This report was originally published as a submission to the Independent Commission on Banking as part of a substantial study by The Work Foundation and the Big Innovation Centre, supported by our partners NESTA, to identify and evaluate the evidence about UK bank lending practices, how UK banking contributes to investment and innovation and to what extent developments in 'shadow banking' that have spurred bank growth have inhibited UK banks' contribution to the UK economy. We felt that our early conclusions, although necessarily tentative, were sufficiently salient to be part of the Commission's deliberations as it prepares its final report. Our plan is to complete our work by Christmas 2011 but by then the Commission's final report will have been published – hence our submission now.

Chapter 2 Do banks support high growth, high innovation SMEs?

There is currently a lack of good data on bank lending to SMEs. In the 1990s the Bank of England small firms division collected data on hurdle rates, payback periods, and the terms and direction of lending. When this work moved to the DTI (now BIS) it became patchy and intermittent. The figures on macro-trends in lending posted on the Bank of England website under Project Merlin are unaudited and not very granular. It is hard to find details, for example, on loan to value ratios for collateralised lending to SMEs or the range of data that the Bank and BIS used to collect. The 2009 Rowlands Review on the Provision of Growth Capital to Small and Medium Sized Enterprise estimated that there were between 25,000 and 32,000 SMEs between £2m and £10m in size who would need growth capital of which around 5,000 were potentially disabled from getting the support they needed. However, the Rowland Review too was inhibited by lack of solid data to prove its point.

However, a number of high quality surveys, studies and evaluations of SME lending have been recently undertaken. Professor Stuart Fraser, at the University of Warwick Business School, has undertaken a new wave in 2009 of a large ESRC funded survey of SME lending (the UK Survey of SME Financing).

The most recent results for 2009 suggest that firms have experienced increasing cash flow problems which has increased their need for working capital and demand for overdrafts. However, firms have also kept their capital investment projects on hold which reduced demand for term loans. Despite the likelihood of default in 2009-10 being lower than 2008-9, the costs of overdrafts increased (interest went up from 3.3 per cent over base 2005-2008, to 5.4 per cent over base 2008-2009) as did term loans (interest charges increased from 2.7 per cent over base to 5.4 per cent over the base rate over the same period). Thus loan margins have increased despite a fall in default risk. Interestingly, the costs of overdrafts were 5.4 per cent, 5.6 per cent, and 5.4 per cent over base rates for low, medium and high risk firms respectively.

Rejection rates went up from 11.3 per cent to 14.3 per cent, driven by the rise in rejected overdrafts for high risk firms which went up from 16.3 per cent to 28.2 per cent. To put these in context, in a given year only ~5 per cent of unsecured loans fail, and in a recession that goes up to only ~7 per cent.

Of the loan rejections 'no reason given' was given as a reason for rejection 36.6 per cent of the time, compared to 24.5 per cent of the time in 2005-2008. This suggests banks relationships with their customers need improvement and the market for banking services may be uncompetitive. Discouraged borrowers increased from 6.3 per cent to 15.2 per cent of firms driven by increases in both high risk (consistent with the market

working well) and low risk firms (consistent with the market working poorly). Reasons for loan rejections that have risen include 'lack of collateral' and 'risky industry' while 'poor credit history' and 'poor performance' have declined. This indicates increasing uncertainty among credit officers about how to assess applications on their individual merit. While the vast majority of firms were happy or very happy with the service they received from their bank, there was a sharp increase in firms' dissatisfaction with their bank because of the availability of finance and bank charges, leading to sharp increases in firms switching banks.

The overall picture is mixed. The majority of firms are happy with their banks and get the loans they seek, but a sizeable proportion of firms are not being supported. On the one hand many of these firms are high risk, which is what we would expect if the post-recession market was working well, but on the other hand, a large proportion of lower risk firms (perceived to be high risk) are not getting the finance they seek despite default rates falling. Moreover, banks are not prepared to use full risk adjusted pricing and charge higher interest rates to higher risk firms. On Fraser's evidence both the banks and the vocal SMEs are right (or wrong). The banks are right that in a recession, when firms put off investment and pay back debt, the main constraint is a lack of demand for lending not a lack of supply. But the SME associations are right that there is an economically important lack of supply.

Professor Marc Cowling at the University of Exeter has explored what types of firms are being rejected and why using unique longitudinal survey data. He finds that in absolute terms the number of firms refused loans peaked in February 2009, six months after the start of the financial crisis, when 119,000 smaller businesses who applied for finance were rejected. By December 2009, this had fallen to 56,000 but by the end of the official recession in the 1st quarter of 2010 it increased to 73,000 SMEs. The recession has clearly led to a significant decrease in the ability of smaller firms to access external credit. This is despite government schemes that cover 70 per cent of the default risk (to the point that Cowling estimates lending would still be profitable even if default rates reached 40 per cent).

When looking at the types of firms that are rejected he finds that 27 per cent of SMEs sought funding in 2007-8 and 90 per cent received at least part of what they sought. In the year after the recession started 24 per cent sought external funding and less than 70 per cent got it. This suggests a significant problem exists at a time when SME cash flow is under pressure. Looking into the reasons for seeking and receiving funding in more detail, Cowling finds that financial institutions have changed how they decide about loan applications and are ignoring the growth orientation of the firms when making lending decisions and instead using simple metrics such as firms size, which proxies

for collateral. This socially suboptimal behaviour is economically rational for highly leveraged banks concerned about their exposure to a loan portfolio that they cannot move off their balance sheet. Overall, these findings suggest that while most firms are receiving funding, 'the subset of small businesses most capable of creating new jobs and stimulating economic growth as the economy emerges from recession may be prevented from doing so by limited access to investment capital.' (Cowling et al 2010)

A third piece of evidence on SME lending comes from an online survey carried out by 1,204 members of the FSB Voice of Small Business Panel completed between 13th and 20th June 2011.[6] The survey finds that some 20 per cent of SMEs in the sample had applied for funds mainly to cover cash flows (35 per cent) and inject working capital into the business (25 per cent). Of the 922 firms that didn't apply for a loan, 75 per cent didn't need the financing, but 11 per cent believed an application would be rejected and 11 per cent thought the bank's terms were unsuitable. 41 per cent of the firms received all the funds they sought, but worryingly 37 per cent of the firms were turned down. This larger figure may reflect the sampling of the survey.

The main reasons given for turning down a loan application were insufficient security being offered (27 per cent), poor credit rating (17 per cent) and poor cash flow (17 per cent). However, 19 per cent were unsure why they were turned down and 25 per cent of firms cited 'other' as their answer in the survey. These findings are consistent with Fraser's study. The implications of the squeezed financing was that 37 per cent of the turned down firms experienced ongoing financial concerns, 29 per cent missed growth opportunities, and 19 per cent delayed and 16 per cent scaled down their investment plans. While this survey is less representative than the previous two, its findings do suggest the problems they identified are continuing.

A fourth piece of evidence comes from an evaluation of the impact of the Transitional Loan Fund scheme conducted by Cowling and Oakley for BIS.[7] This policy intervention is particularly interesting as it acted as a natural experiment to create information on how an alternative institutional arrangement might work in a real world setting. The Transitional Loan Fund was set up by the government to support SME lending during the recession as a stop gap measure. It was administered by the Regional Development Agencies (RDAs) – who have been shut down, so there it cannot be suggested that they had an unfair advantage compared to professional bankers. They outsourced the provision of financing to under-supported SMEs to a network of retired bank managers, and the scheme competed directly for custom with the high street banks. Some 400

6 The study, whose interim results we are using, was undertaken by Research by Design on behalf of the Federation of Small Businesses

7 Cowling and Oakley (2010) Economic Evaluation of the Transitional Loan Fund Scheme. BIS

loans were made to firms under the scheme, 95 per cent of whom had been refused by high street banks. If the banking system is working well, then we would expect these loans to perform very poorly.

Despite this being an emergency measure, administered by the RDAs and people outside the mainstream banking industry, focusing on higher risk firms that had been refused loans by high street banks, in direct competition with established banks during a recession, the assessment of default rates by BIS (Cowling and Oakley, 2010) suggests default rates were very similar to high street banks. The scheme's problem was not over-lending to poor quality firms, but that its roll-out was too slow. This small scale but successful intervention suggests that the high street banks are failing to provide debt financing to a subpopulation of firms, and that these firms can be profitably addressed, even by a financial institution setup in a hurry as an emergency measure, operating in a recession and having a loan portfolio far too small to allow proper risk diversification.

Summarising these findings:

- Most firms with collateral eventually receive the funding the seek;
- However, for a significant subpopulation of firms loans are unforthcoming;
- Banks are not lending to two groups of firms: higher risk firms who are being refused debt rather than being offered higher interest rates and firms with growth ambitions and potential who do not have collateral;
- This reduces investment and produces a sub-population of discouraged borrowers;
- Even a rushed 'emergency scheme' relationship-banking institution performs well.

These findings make it hard to avoid the conclusion that for an important proportion of firms, including many high potential firms, the banking system is not working well in the UK. In the next sections we explore why this is the case and then in the concluding section what can be done about it.

Chapter 3 The Impact of increased capital requirements on lending to innovative SMEs

Given this problem with lending to SMEs, what will be the impact of increased capital requirements? Banks suggest that increased capital requirements will raise the weighted cost of capital and cramp their capacity to lend, so reducing lending to SMEs and more widely limiting the economic recovery (Admati, 2011).[8] In this section we highlight how these suggestions are misleading. In part they reflect a confusion about the two sides of a bank's balance sheet and two types of regulation. Capital requirements address the balance between debt and equity in how banks are funded (i.e. their liabilities), while liquidity requirements relates to the types of assets banks hold.[9]

The different ways in which risk is borne by different types of investors on the funding side need not have any direct effects on the either the costs of funding or on how funds are distributed between different types of assets. One of the major findings in corporate finance is that the balance between debt and equity does not influence the average cost of funds unless securities are mispriced.[10]

Debt and equity can be mispriced by poorly designed taxation systems that subsidise debt or (implicit) government guarantees that transfer risk from investors to the State. These act to transfer wealth from the taxpayer to bankers. In theory different kinds of security simply reflect different ways in which investors are rewarded and carry risks. Debts are promises to repay at a future date with interest, and equity is a promise of a share of future profits in an enterprise.

Equity can be considered as the amount of a debtor's assets in excess of the debts to which they are liable. On a balance sheet equity is added to liabilities to ensure they match assets, and so provides a measure of the net worth of a business and the extent to which it has a clear safety net able to deal with any problems it faces.[11] Leverage reflects the multiple between equity and liabilities and so provides a measure of this safety net. Banks with high leverage have a limited safety net of equity making them more risky and their equity more expensive.

Because debt is repaid before equity and equity investors do not have a guarantee that their investment will be repaid, equity carries a higher risk than debt that investors factor into its pricing. Equity *is* a more expensive way of raising money than debt for

8 Admati et al (2011) Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Expensive

9 Since banks' creation of economically valuable credit creates the risk of a banking run, banks are required to hold a percentage of their assets in liquid form

10 The Modigliani Miller (MM) theorem implies increased equity decreases the volatility of equity returns and reduces the risks of debt causing both their required rates of return to fall without changing the average cost of finance

11 Average equity as a percentage of total assets in 2008 was approximately 7 per cent in the US, 4.4 per cent in the UK, 3.2 per cent in the rest of the EU and 2.8 per cent in Switzerland

banks' shareholders, but that difference reflects the risks that the investors will lose their investment. Equity is currently comparatively expensive for UK banks because investors consider that leverage levels, although they have fallen, are still high. They are also concerned about unknown impairments and write-offs from legacy lending and uncertain about what the future business model will emerge from new regulations.

Banks have high levels of deposits in their liabilities side of their balance sheet, so to maintain their equity they must balance these liabilities with high levels of lending to create assets (i.e. loans are considered assets because they are money that someone else owes to the bank). High leverage can be dangerous for the economy because small relative decreases in the value of banks' asset can either lead to loan impairments that threaten solvency or compel banks to sell assets to maintain regulated levels of equity. Because leverage has a multiplier effect on the amounts of assets that have to be sold, it can pressurise asset markets, leading to a vicious circle of fire sales and falling asset values. Financial problems in one bank can spill over to other institutions as assets fall in price, banks' risks increase and credit dries up.

Given the extensive systemic damage that the failure of large highly leveraged banks would do to the economy implicit government guarantees are a key policy tool. These guarantees reduce the risks to investors of lending money to banks, allowing banks to borrow more cheaply. In economic terms this is a direct anti-competitive subsidy which transfers wealth from the taxpayer to large banks, creating a substantial barrier to entry for smaller new market entrants. For banks that are too big to fail, this transfer gets larger the more risky bankers' behaviour is, creating a dangerous incentive structure that socialises costs while privatising benefits. Reducing leverage by requiring banks to have more equity would increase banks' safety-net, drastically reduce this risk, and therefore make equity cheaper.[12]

Historically, banks have argued against higher capital requirements because they believed that they had developed instruments that allowed them to grow their assets with lower risk weightings; higher capital ratios would lower the incentive to innovate and use capital efficiently. Although obviously a low capital ratio regime also increased returns to shareholders, bank argued that there was wider economic gain in banking efficiency and easier creditworthiness terms for borrowers. After the crisis it is more obvious that banks were exploiting the implicit guarantee from taxpayers. An

12 The theory behind this argument – the Modigliani Miller theorem – currently underpins how banks work out their risk exposure. Argument against raising equity requirement are unconvincing – either the Modigliani Miller model works, in which case there is no good argument for not increasing equity, or the Modigliani Miller model does not work, in which case the models behind how capital adequacy requirements are calculated are wrong, and banks are much riskier than regulators think, in which case there are good reasons to increase equity very substantially

important argument for increasing capital ratios is that they force banks to shoulder a larger proportion of their losses (though not the full amount in the absence of effective charges). From a public policy perspective their private loss is irrelevant as a bolstered safety net increases overall efficiency and welfare.[13]

Low capital requirements also produce inefficiencies in the economy that benefit banks' shareholders at the expense of the public due to the debt tax shield. Interest on debt is deducted from profits before corporation tax is paid, while dividend payments to shareholders are made out of post-tax profits. Higher capital requirements reduce this distortion but increase banks' tax bills. Again this private loss is not important from a public policy perspective.[14]

In short carrying increased capital de-risks the system and progressively, as Adnat Amati and others have argued, lowers the risk premium embedded in the cost of equity capital. There is now a considerable amount of research on suitable capital requirements. Historical evidence suggests that banks are able to function very well with capital ratios of over 30 per cent. In the UK Handelsbanken is operating with 17 per cent tier one capital ratio. In Switzerland large banks are required to have a 'Swiss finish' that goes well beyond the Base II requirements. They must hold at least 19 per cent risk weighted capital; of which 10 per cent is common equity (3 per cent higher than Basel II) and 9 per cent can be contingent convertible (CoCo) bonds. David Miles, Jing Yang and Gilberto Marcheggiano in an external paper for the Bank of England find that a doubling of capital from current levels would lift the cost of total bank funds by between 10 and 40 basis points, which they judge a tiny price for the reduced systemic risk. We take the argument a step further. It is clear that the combination of higher overall capital, formal separation or ring-fencing will reduce systemic risks and remove both the cross-subsidy within banking towards investment banking and the subsidy from taxpayer to investment banking. Moreover, it is likely to make lending to innovative SMEs more attractive, and the problems listed previously will be redressed.

13 Hildebrand, 2008, text of speech at LSE

14 Moreover, even from a private perspective it is small: a bank that increases its leverage ratio from 1 to 5 per cent, paying 20 per cent corporation tax has its value reduced by less than 1 per cent (Hildebrand, 2008, text of speech at LSE)

Chapter 4 Distortions in the cost of debt and lending to SMEs

Two major innovations have transformed banking in the last 30 years and help explain the patterns of lending in Chapter 2 and the distorting effects of high leverage. Firstly, the ability to securitise debt and move it off the banks' balance sheets allowed banks to substantially increase the scale of many of their activities and in theory more effectively allocate risk between institutions with different risk preferences. Secondly, credit scoring models based on the statistical analysis of large datasets have largely replaced the subjective professional judgement of bank managers when making decisions about loans.

The first of these innovations underpins the 'originate and distribute' securitisation model, which is based on using derivatives – principally credit default swaps – to hedge risk. These tools were used to create assets that regulators allowed to be given low risk weightings under the Basel II guidelines. Relatively simple and widely shared techniques could be used to calculate the risks and value of these asset backed securities creating the conditions for a liquid market. As Figure 1.3 shows banks exploited these techniques to reclassify the risks associated with the assets they held to transcend capital constraints. The business model associated with residential mortgage lending, student loans and acting as intermediaries for large companies is well developed to exploit these new instruments. Loans are assessed against sophisticated credit scoring models and the resulting debt is securitised and sold off, taking liabilities off the banks' balance sheets. This allows for lending at scale in ways that are readily realisable for cash on well understood matrices of risk.

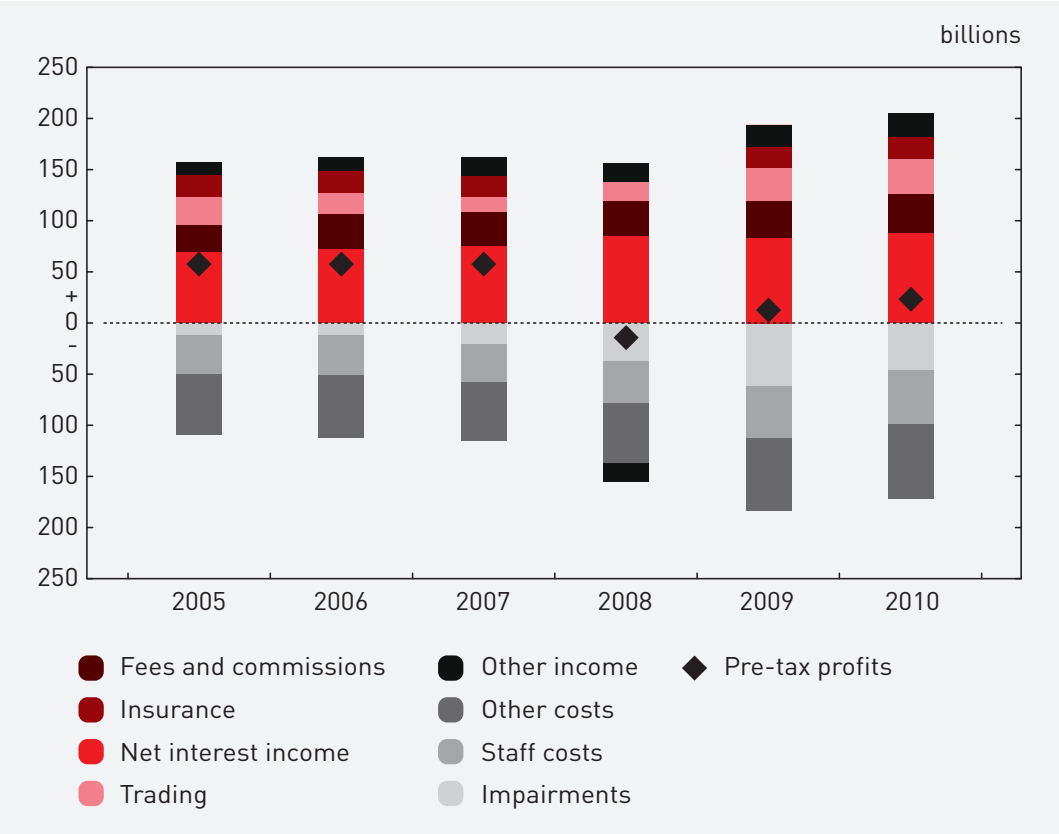
The ability to move risk off banks' balance sheets has had the unfortunate consequence of encouraging financial institutions to pay less attention to the underlying risks and default correlations among their loans. The ability to churn loans without incurring balance sheet exposure also increased the amount of credit in the economy that was not properly priced, creating asset bubbles. In residential and commercial property for example, the increase in value ended up validating increased lending to property, creating a self reinforcing rise in prices.

With the benefit of hindsight we now know that this asset backed security model had fundamental flaws. Moreover, the implicit guarantee compounded the problems by subsidising the costs of debt. As a result, risks were under-estimated and mispriced. This led to major distortions in the operation of the UK financial sector in areas such as residential self certificated mortgages which expanded excessively. However, this expansion did not happen in relation to lending to SMEs. To see why we need to understand the Asset Backed Security business model interacted with the second major innovation – computerised credit scoring models.

With traditional relationship banking, decisions about lending and evaluations of risks were undertaken in a decentralised manner by experienced local bank managers. Based on their professional expertise and knowledge of the history of their customers, bank managers and lending officers would have a considerable degree of flexibility in deciding about lending. From the 1970s onwards banks built large IT based credit scoring models. Banks gather detailed behavioural data on customers to allow risks to be more effectively modelled. Credit scoring models mean that the traditional economics textbook model of the relationship between a bank and an entrepreneur is misleading. The traditional textbook view is there is a major problem because the entrepreneur or firm owner has more knowledge about the quality of their firm than the bank manager does and therefore can potentially play the system to their advantage. The reality is that when an entrepreneur comes into a bank today, the information on their firm is instantly related to a behavioural credit model that may contain information on tens of thousands of similar firms. As a result, the bank typically has far better understanding of the risks of the firm than the entrepreneur (who are notorious for being over optimistic about risks). The introduction of these models has improved the analysis of the risk of banks overall portfolio of SME lending, but not necessarily the analysis of the risks of lending to high potential SMEs.

These models are used to help plan service provision. Since only a half of profits are related to lending, with a significant element arising from fee income, bank lending officers can offer 'soft' loans to tie in customers to more profitable services. Bankers do not judge profitability on the basis of individual transactions. Instead, they evaluate the man-hours and funds devoted to clients against the overall fees and interest they pay. When firms apply for loans credit modelling is focused on improving the bank's returns by modelling the benefits of services against the potential losses from defaults, based on standardised data on tangible assets. Such models are extremely effective for established firms with high relative levels of tangible assets, who our data suggests are very happy with the banking services they receive. However, the models are much less effective at analysing the risks of lending to high growth firms, whose growth is likely to be disproportionally based on intangible assets. Since the value of such intangible assets is difficult to capture, such firms seem to be higher risk than they actually are. As a result, a high-potential software firm that is seeking investment, even over a relatively short period, to pay salaries and employ new programmers is less likely to be funded. The constraint is worrying because firms that sell IT services business-to-business are among the least likely to fail, most likely to grow and most likely to generate new jobs – but they are among the least likely to get funding.

Figure 4.0: Major UK banks' revenues, costs and profits



Sources: Published accounts and Bank calculations

Lending to such SMEs is constrained because banks do not consider it worthwhile to distinguish between lower risk firms with substantial intangible assets (that should be lent to) and higher risk firms that lack such assets (that should not be lent to). Because SMEs are so different, the risk associated with SME lending is less easily turned into mathematical models (apart from those related to the economic cycle). Current accountancy rules mean that collateral, particularly intangible collateral, is not valued to take into account future growth prospects. By contrast, for student loans future earnings and default rates *are* modelled in ways that both taking into account future earnings and allow loans to be sold on. The alternative approach of undertaking traditional expensive upfront investment in relationship building and detailed credit assessment is also problematic for such firms as individually they are considered too small to merit the investment in time and effort and collectively represent a small percentage of the market. When all SME lending was undertaken in a decentralised manner, then the costs of relationship banking could be spread. Now

that most SME lending can be better credit scored by centralised models, the relative costs are even higher and banks have lost considerable ability to analyse SMEs. When the mathematical models underpinning lending to SMEs broke down in the recessions, banks lacked the ability to analyse individual firms and resorted to absolute rationing.

Rationing occurred even though it is recognised that behavioural credit scoring models are not perfect. While lending officers are allowed to over-rule them they do so at considerable personal career risk. If the credit scoring system was over-ruled and the firm defaulted, then the person who over-ruled the system would face serious consequences. Bankers gain little professional benefit if their decisions are proved correct, as this would have almost no impact on the bank's bottom line.

Collectively these problems generate various categories of credit rationing and inter-related problems for the economy. We identify:

Absolute rationing – this occurs when banks refuse to lend. In a recession the evidence is that 90 per cent of firms will survive, but only 70 per cent of firms will get a loan when they ask for one. Absolute rationing affects the missing 20 per cent which is likely to include a disproportionate number of the most innovative firms in the economy.

Quantity rationing – which is somewhat different, and occurs when entrepreneurs seek funding, but rather than being refused are offered a smaller amount. This is a problem because some investments are economically 'indivisible'. A shop seeking a loan to invest in £100k of stock, who only gets £50k, ends up with a half full shop, but the same fixed costs. This situation makes both survival and making a profit much harder. This creates a self fulfilling problem where underdeveloped firms fail more often because of limited lending, which confirms banks' decisions to only lend them a limited amount. The extent of this problem is poorly understood.

Discouraged borrowers – these are individuals and firms that have legitimate investment opportunities, and would be funded if they went to banks to ask for money, but believe that they would not be and as a consequence do not ask and do not get. The resulting lack of investment is a loss to the economy.

Discouraged innovators – are individuals and firms that could develop legitimate investment opportunities, but do not do so because they believe they would not be funded or would spend too much time seeking funds. These perceptions and facts about bank lending and support for SMEs have real world influences, reducing economic activity and suppressing innovation. They generate a discouraged economy – where individuals and firms cannot develop innovative investment opportunities because the extent of discouragement has reduced the dynamism of the country.

These biases against small firms are made worse because SME loans are harder to bundle into securitisable assets. As a result, their risks can't be as readily taken off banks' balance sheets, which make them disproportionately more costly. There is a ready market for packaged personal loans, as they have well understood risk profiles, but there is no such market for packaged SME loans in the UK. The Bank of England does not accept commercial paper in its open market operations at its discount window, at the margin accentuating the bias away from uncollateralised SME lending. SME loans are therefore especially risky for banks.

As a result, SME lending has not been able to take advantage of the distortions caused by the mis-pricing of risks in the ABS market and the socially damaging subsidies of debt generated by ineffective regulation and excessive leverage. SME lending was the Cinderella who didn't go to the ball. Our argument is clearly not that the UK would have been better off if SMEs could also have exploited socially damaging behaviour associated with the mispricing of risk. Instead, the problem relates to the distortions that high leverage introduced. While in theory capital ratios should not influence the distribution of lending activities, the distortions introduced by low capital ratios supporting all bank activities together with the implicit cross and taxpayer subsidies has biased activity away from SME lending.

Chapter 5 High leverage and distortions in the market for SME lending

A key distortion relates to professional incentives and mismatches between managerial systems within banks. Because returns on equity are key elements in determining bonuses, bankers are unlikely to look as favourably on SME lending. The distortions caused by excessive leverage in other areas increase returns on equity and draw talent within banks away from SME lending.

Excessive leverage also biases against SMEs because of the multiplier effects that are associated with defaults. The high leverage caused by insufficient equity means that the costs of defaults in loan portfolios are extremely high as high multiples of assets need to be reallocated to bring both sides of the balance sheet into line. As a result, bank's focus on risks of default is exaggerated.[15] This structure explains the results highlighted in the previous section. For the banks and for the majority of firms this system works well most of the time. Most firms that should be funded get most of the money they are seeking. However, from an economic perspective we are not only interested in 'most firms'. The impact of SMEs on the economy is highly skewed. A small minority of firms generate the majority of growth and innovation. In the UK the banking system does not support these firms sufficiently creating a legitimate public policy concern about a number of problems.

Thirdly high leverage creates substantial barriers to entry for new banks offering services to SMEs. Concentration in the banking sector associated with high leverage and the subsidies given to large banks through implicit guarantees further restricts competition by subsidising a particular model of banking in a highly concentrated industry. As a result, most banks are using the same model and dissatisfied customers have no-where else to go.

Though we note that Handlesbank's entry shows that these barriers are not insurmountable, and that relationship-banking with socially responsible levels of equity (~20 per cent) can be very profitable. Lending decisions are delegated to managers within branches who make judgements on the basis of their own judgements about repayment capacity rather than relying on centralised credit scoring techniques. Handelsbanken managers tend to be careful to select businesses with proven track records of good business stewardship rather than start-ups, but nonetheless their approach has lead to winning startlingly large market shares very quickly in the territories in which they operate. Tier one capital is 17 per cent – 7 per cent above the level recommended by the ICB. Handelsbanken cost of funds to customers remains

15 Banks can use the tax system to offset their losses when the economy goes well, reducing their incentives to understand them fully, but resort to absolute rationing during a recession.

keenly priced with a very low bad debt ratio. Far from raising the cost of capital and inhibiting lending, the high capital ratio offers a cushion for SME lending so reducing the risk premium and encouraging managers to find good quality lending prospects.

Internally, there are no incentives for banks to unwind this bias. The returns on debt are capped. Banks receive limited additional benefits, apart from future business, if the firm is exceptionally successful. Consequently, the success of high performance firms, over and above their ability to pay back their debt is largely irrelevant to banks' credit scoring calculations. From the banks' point of view the economic and social usefulness of such lending to high growth firms is irrelevant. We note that (1) this would change if banks invested in borrowing firms' equity along with supplying credit , (2) that banks behavioural credit models could provide a better initial starting platform to consider such investment compared to those equity providers starting with no knowledge, (3) on their investment banking side, banks do take equity stakes in large firms, and (4) there are numerous public policy measures that are available to support such investment, particularly given the governments superior ability to appropriate the positive returns to innovation through the personal and corporate tax systems.

Chapter 6 How to create more economically and socially optimal lending?

Our analysis suggest that higher capital in retail and commercial banking, ring-fenced or better still separated from investment banking, will deliver a 'Handelsbanken effect'. Higher capital ratios will lower risk premiums so that any rise in bank funding costs will be trivial. More importantly, an environment will be created where SME lending is not seen as a consumer of scarce risk capital with a high opportunity cost of foregone investment banking opportunities, but where it is seen as a useful profit stream in its own right competing for attention with other profit and revenue streams that all have lower returns.

The inability of the UK financial system to find finance for fit for purpose SMEs has been well known and debated for at least the last 80 years. For example the Macmillan Committee in 1931 famously identified the Macmillan gap. The establishment of the Industrial and Commercial Corporation in 1945 was a response to this perceived need, and which it only partially solved. In any case the floatation of what became 3i Group as a PLC in 1987 lead to a refocusing of its business away from SMEs, creating a gap in the market that the recently created £2.5bn Business Growth Fund is designed to redress. The Industrial and Commercial Finance Corporation – criticised in 1945 for being too small scale – was at least a bank incorporated with a capital base of (relative to 1945 GDP) some £2.25bn in today's prices and which had an ongoing capacity to lend. By contrast the Business Growth Fund is a one off fund.

Our later paper to be published in December will develop fuller ideas about how the financial system could be further reformed to accelerate not just the flow of bank credit but equity finance to SMEs – addressing questions of regional coverage, whether public capital is needed to supplement private capital and how that might be done, how to revive Britain's depleted Venture Capital industry, how to develop the Green Bank and how the Business Growth Fund might be leveraged and turned into a larger and more effective twentieth century version of 3i Group PLC. This interim report necessarily focuses on how greater tier one core capital requirements – as long as accompanied by tough ring-fencing – could help to develop a more active market in SME lending.

The bank position today in the aftermath of the credit crunch is not essentially different to the response to the Wilson Committee in 1978. Despite evidence to the contrary, all firms that deserve credit in general receive it and the development of 'universal banking', offering SMEs an array of innovative financial products rooted in banks' investment banking wings has been very beneficial to SMEs. More capital and ring-fencing will harm this model – arguments made by both Bob Diamond and Stephen Hester to the Treasury Select Committee in June 2011.

The proposal to raise equity capital to 10 per cent – above the Basel requirement of 7 per cent – for retail and vanilla commercial banking falls well short of the 17 per cent ratio advocated by David Miles et al, the levels now used by the Swiss banks and Handelsbanken. The more capital requirements can be lifted towards 17 per cent within a tough Glass-Steagall like ring-fence, we argue that not only the sounder Britain's retail banking, the more relatively attractive SME lending will become.

The ratio chosen for retail/commercial banking will become the benchmark for judgements about risk and reward in investment banking. There will be more transparency that the higher potential returns in investment banking are because of high leverage, low capital ratios and reliance on necessarily irregular deal flows, proprietary trading positions and business propositions in which the banks are often both sides of the bargain in conflicts of interest. However, the ring-fence and higher levels of capital in retail banking will change this calculus. Investors will demand higher returns from investing in ring-fenced investment banking without the cross-subsidy from retail deposits or explicit government guarantee to compensate for the additional risk. Investment banks will either tend to shrink their balance sheets to provide the higher returns but with less risk for any pound of capital - or they will overtly use less capital to provide high but obviously more risky returns because the risk of balance sheet write offs will be higher. It is likely that the stock market valuation of such risky income streams will be very much more cautious than at present, making the supply of new equity to the business expensive. The true costs and risks of investment banking will be exposed.

Higher capital together with ring-fencing or separation will not alone do the trick – and in any case will have to be carefully designed. In this respect if the ICB feels unable to recommend formal separation, the HSBC paper submitted to the Select Committee suggesting ring-fencing around IFRS 9 amortised costs is an important contribution. However more will be required. In our later paper for example, we will also consider how additional reforms to the way the Bank of England operates its money market interventions and the classes of assets it is prepared to accept to discount or as collateral would remove a further bias against SME lending. It may also be necessary to introduce public capital and new institutions into the banking system to achieve the required results – and to revisit the recommendations made by the Rowland Review. The ICB's recommendations could mark a watershed moment in British banking, and if supported by further reforms, remake the banking system as a fruitful supporter of Britain's innovation and investment ecosystem.

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About the authors

Will Hutton is currently Executive Vice-Chair of The Work Foundation, but standing down in August to become the Principal of Hertford College Oxford. He will chair a major programme on innovation to be launched this autumn by the Foundation of which this study is part. He has written a number of books on economics and politics, the latest of which is *'Them and Us – Why Britain needs a Fair Society'* and led a review into fair pay for the Coalition Government published in March 2011.

Paul Nightingale is Deputy Director of the Science Policy Research Unit (SPRU) at the University of Sussex where he leads a large research group working on the funding of high impact firms. He is currently on the editorial board of *Industrial and Corporate Change* and *Research Policy*. Financial support for the research underpinning his contribution to this submission was provided by the IRC Distributed Projects Programme funded by NESTA-ESRC-BIS-TSB, research funded by the ESRC, EPSRC, BIS and the FINNOV FP7 project.

Contact details

Big Innovation Centre
The Work Foundation
21 Palmer Street
London SW1H 0AD

info@biginnovationcentre.com
www.biginnovationcentre.com
www.theworkfoundation.com

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