



BANK OF ENGLAND

# Speech

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## Deleveraging

Speech given by

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At Market News International, London

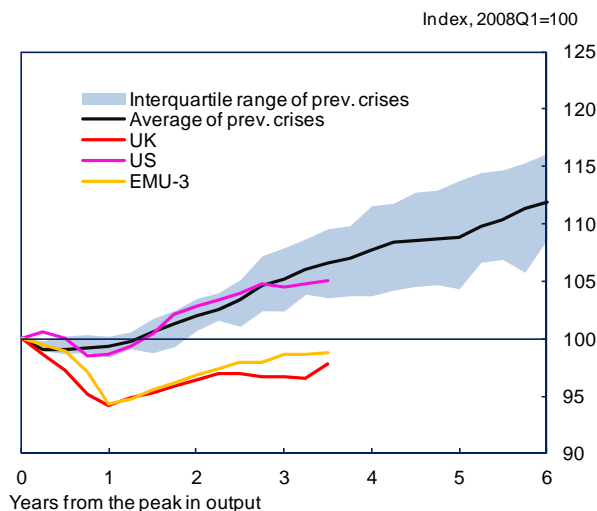
15 March 2012

I would like to thank Alina Barnett and Adrian Chiu for research assistance and I am also grateful for helpful comments from other colleagues. The views expressed are my own and do not necessarily reflect those of the Bank of England or other members of the Monetary Policy Committee.

## Introduction: “we all borrowed too much”

In 2008, as part of their comprehensive history of such episodes, the economists Carmen Reinhart and Ken Rogoff warned that it usually takes a long time to recover from financial crises. Output and productivity tend to grow more slowly than in normal recoveries and, even if the economy eventually returns to its pre-crisis trend, it does so only after a significant cumulative loss in the meantime.

**Chart 1: Labour productivity compared to previous financial crises**



Note: This work reflects ongoing work by Bank of England staff, in particular Jumana Saleheen and Abigail Hughes. Average and inter-quartile ranges are based on 13 historical episodes of financial crises, as identified by the IMF April 2009 World Economic Outlook.  
Source: OECD and Bank of England calculations

Unfortunately, this episode is no exception. At this stage of other post-war recoveries, two to three years after a cyclical low, UK economic growth has usually been above its long-run average. This is true even if – as has also typically been the case – fiscal policy is being re-tightened at the time. As it is, growth is sluggish, at least in Europe, and monetary policy throughout the developed world, where the debt crisis was concentrated, remains extremely accommodative. If this is a recovery, it's one that barely deserves the name. Indeed, productivity growth in Europe looks low even relative to the average of past crisis (Chart 1).

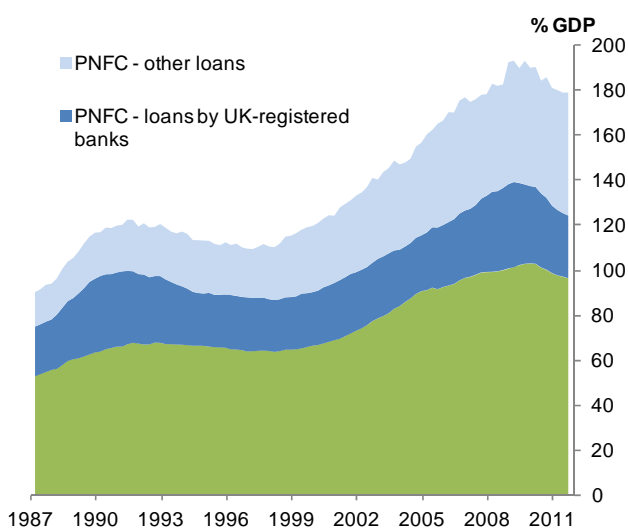
But what is it, exactly, that does take time? If the answer is “deleveraging”, whose is it that matters? And what, if anything, will tell us when it's over?

These are important questions, beyond simple academic interest. Even if it's hard to imagine now, there will come a point when monetary policy has to be normalised, and having some forewarning of when that's necessary is clearly crucial.

Unfortunately, the answers are probably not straightforward. One simple view I hear quite often is that deleveraging will only be complete – and healthier rates of economic growth will only resume – when ratios of gross debt to income return to more “normal” levels. In this speech I take issue with that view.

Usually the reference is to debt in a particular sector – households, or the non-financial private-sector economy as a whole (households plus firms). The rise in their combined indebtedness during the 1990s and 2000s (Chart 2) is said to prove, in and of itself, that there was excessive borrowing everywhere – “we all borrowed too much” – and that it is this excess that fuelled economic growth and the build-up of risks that led to the subsequent bust. The conclusion is then drawn that households and firms will have to save a lot more, for a lot longer, before debt returns to sustainable levels and more balanced growth can resume.

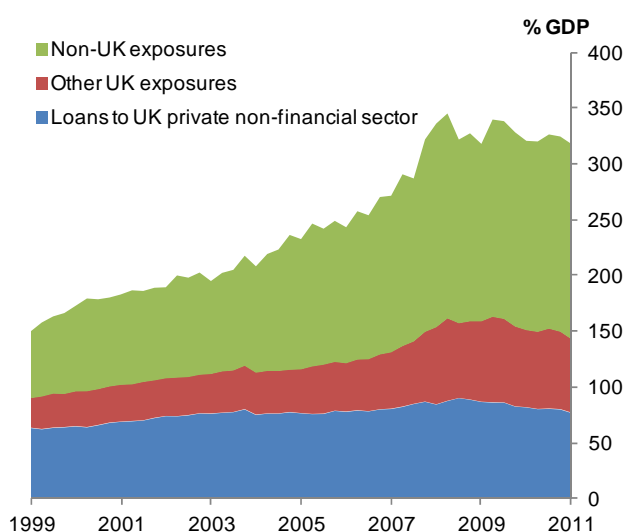
**Chart 2: Gross indebtedness of UK non-financial private sector**



Note: PNFC stands for private non-financial corporates. Light blue swathe include loans made by non-UK MFIs and other PNFCs.

Source: ONS

**Chart 3: Estimated assets of UK-owned banks**



Source: Bank for International Settlements, Bank of England

At other times, the same story is told using some notion of “aggregate” indebtedness – the sum of all fixed-income obligations of the private sector, the public sector and the banks. On this measure, thanks largely to the size of its banking system – Chart 3 plots the estimated aggregate balance sheets of UK-owned banks since the late 1990s – the UK is said to be “the most indebted country in the world”.

If one pound of debt repayment is a pound less spent on UK output (and that often seems to be the assumption that’s made), and if “aggregate” gearing really does need to return to some pre-boom “norm”, then this unenviable distinction would presumably condemn the UK to the slowest recovery of any country in the world.

No-one can have lived through the past four years without realising the importance of debt and the dangers of excessive borrowing. It is clear in the historical data that almost all financial crises are preceded by rapid growth in credit<sup>1</sup>, and there have certainly been significant parts of domestic private-sector debt – most obviously lending to commercial real estate (CRE) companies, but also unsecured lending to households – that looked increasingly risky ahead of the crisis and have inflicted severe damage on lenders’ balance sheets since.

But I am not convinced that, as a general matter, non-financial domestic leverage was the key reason for the UK’s financial crisis or, therefore, that it needs to return to some historical “norm” for us to declare the crisis at a definitive end.

<sup>1</sup> See, for example, Jorda et al. (2011).

First, as we will see, much of the expansion in Chart 2 can be attributed not to active credit easing by the banks but to the long, protracted decline – from above-average levels – in the real, risk-free rate of interest. This engineered an automatic, largely passive expansion of both sides of the balance sheet, assets as well as debt (the private sector accumulated as much of the former as it did the latter). It also meant that any given level of gross leverage is more affordable than it was in the 1980s and early 1990s. This makes me doubt that there is necessarily a “mean” towards which the line in Chart 2 has to revert.

Second, consistent with this, losses on most domestic loans have actually been unexceptional. Instead, it is UK banks’ substantial overseas assets that caused much of the damage. To take one striking example, the major UK-owned banks have lost around 15 times on non-UK mortgages what they have in the domestic market. Overall, around three-quarters of aggregate losses have been on their non-UK balance sheets.

Third, the empirical evidence linking debt and growth is, at best, mixed. Except at extreme levels, there is no discernable relationship, in cross-country data, between levels of indebtedness and subsequent rates of economic growth, whether during this crisis or over longer periods of time. There is some information in prior rates of change of debt, about both the risk of financial instability and subsequent economic growth, but the explanatory power is small, the relationship doesn’t look stable and there’s an associated risk of “false positives”. Finally, it is not the case, following post-war financial crises that a resumption of trend rates of growth, or the incipient withdrawal of monetary stimulus, depend on a return of domestic debt to some historical “norm. These leverage ratios are almost always still declining when that occurs.

In what follows I will develop these points in more detail. I will argue that what distinguished the UK, more than the indebtedness of its non-financial private sector, was the size of its banks’ overseas balance sheets. To the extent that any single thing can be a useful diagnostic on the state of credit markets, and the prospects for sustainable recovery, it is therefore more likely to be found directly in the UK banking system (its funding costs, for example) than in the domestic non-financial sector. And though the latter can affect the former, it remains the case that the most important risks facing the UK banks, and therefore the supply of domestic credit, emanate from outside the UK.

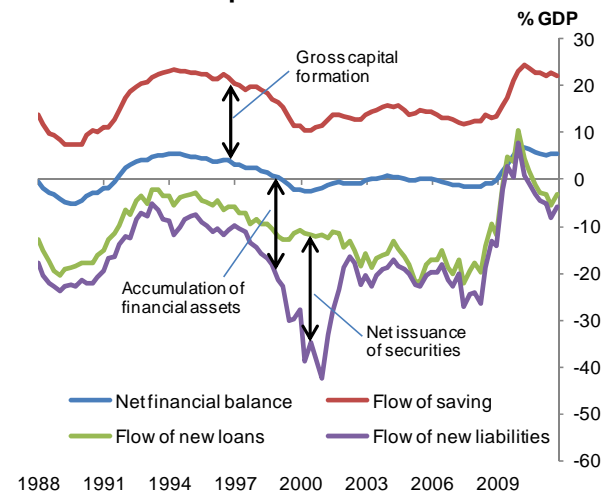
### **The balance sheet has two sides: don’t forget assets**

One obvious point is that, at least in a closed economy, it cannot be right that “we all borrowed too much”, as one person’s borrowing is another’s saving.

The UK is an open economy: its residents are free to borrow and lend (mainly via the banks) in international capital markets. But it turns out that, even here, and despite the rapid accumulation of gross debts in the 15 years leading up to the financial crisis, the non-financial private sector did not in aggregate spend more than its income.

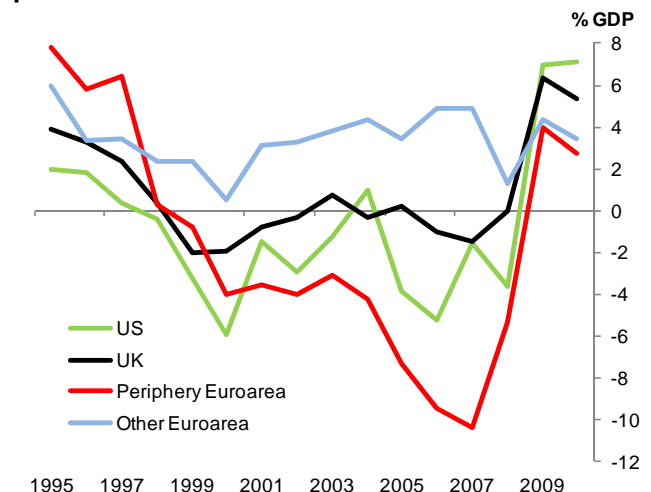
Chart 4 sets out the key flows for households and non-financial firms combined, all as percentages of GDP. The purple line, drawn on an inverted scale, is the flow of all new financial liabilities; most of this (the green line) has been net new borrowing from the banks (the balance is securities issuance). Not only have these flows been positive almost throughout the past twenty-five years – only at the depths of the last recession did the private sector actively reduce its debts – but, for much of that period, between 1992 and 2003, it was adding to them at an increasing rate. At its peak, and over the following five years (2003-08), private-sector liabilities were rising by 2% of GDP a year, and most of it (18% of GDP) was net bank debt.

**Chart 4: Accumulation of assets and liabilities by UK non-financial private sector**



Note: Fund raising activities of corporates introduces the wedge between new loans and liabilities.  
Source: ONS

**Chart 5: Net financial balance of non-financial private sector**

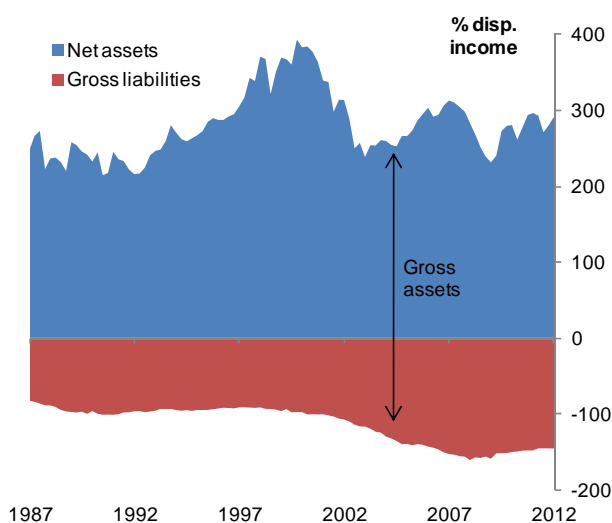


Note: Positive figures indicate net accumulation of assets; vice versa a net build up of liabilities.  
Source: Eurostat and Federal Reserve

What is striking, however, is that it was accumulating financial assets at the same rate. The blue line in Chart 4 is the difference between the two – the net financial balance. It is also (identically) the difference between income and total spending, and between saving and investment. So, at least for the aggregate private sector, all this extra debt was being used not to finance above-income spending but – it appears – an equally rapid accumulation of financial assets.

Note that, in this regard, the UK looks rather different from the Eurozone “periphery” (defined as Spain, Greece, Ireland and Portugal) and, for that matter, from the United States. In these countries, the private sector spent more than its income (Chart 5).

**Chart 6: UK household financial balance sheet**



Note: Values for 2011Q4 and 2012Q1 are estimated.  
Source: ONS and Bank of England calculations

Note too that, as a consequence of this matching asset accumulation, UK households' net financial wealth was no lower in 2008 than in 1992, when gross borrowing started to rise (Chart 6). Even now, and despite the intervening falls in equity prices, the ratio of net financial wealth to income is above the post-87 average.

This is more clearly the case if you include physical assets. Households' total wealth, including housing, is worth eight times annual disposable income in the most recent data (for end-2010), compared with an average multiple (since 1987) of seven<sup>2</sup>.

### **Balance sheet expansion caused by decline in risk-free real interest rates, not easy credit**

How and why did this expansion in balance sheets occur?

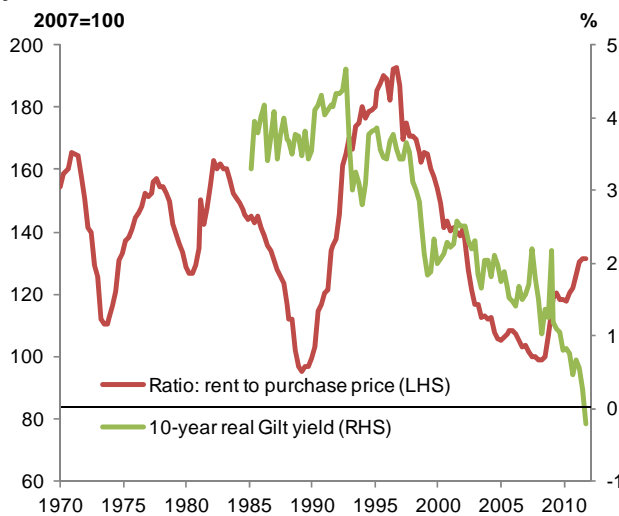
At least until the middle of the last decade, the key factor, in my view, was the significant and protracted decline in risk-free interest rates (Chart 7) – not just the short-term nominal rate set by the MPC, but the longer-term real rate set, in the main, in global capital markets.

As measured by the yield on 10-year indexed gilts, the long-term real rate is now – extraordinarily – less than zero (-0.6% at last Friday's close). That presumably reflects several factors – slow global growth, elevated risk aversion and the effects of the MPC's Asset Purchase Programme – that are both recent and temporary. But the decline began long before the financial crisis, or even any discernable boom in credit supply. In August 1991, at the trough of the recession, the real gilt yield was 4.3%; by the end of that decade it was 2.0%.

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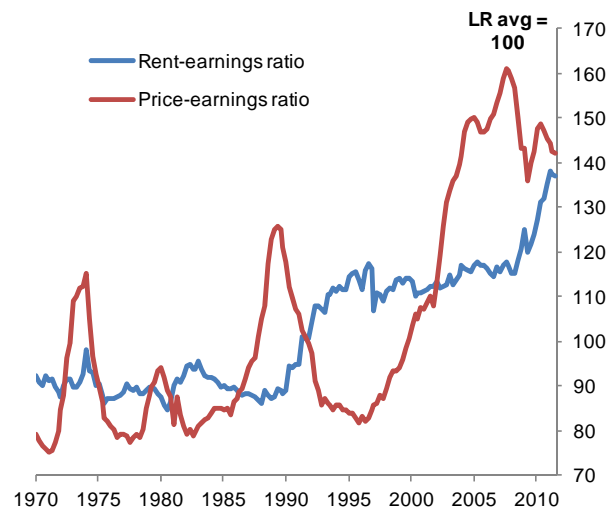
<sup>2</sup> Once you recognise that equity is a liability of the corporate sector, matching the market value of its productive capital (less debt), there is no point accounting separately for firms' net wealth: it is owned by households and captured by the value of their equity holdings.

**Chart 7: Drop in real interest rate reduced rental yields**



Source: ONS and Bank of England calculations

**Chart 8: Rental costs have also risen**



Source: ONS and Bank of England calculations

Note that, over the very long run – i.e. the entire 310-year history of the government bond market – the average (ex post) real return on long-maturity gilts has been 2.6%. So although it was clearly relatively low in 1999 (and is still lower today), the real interest rate was that much further above the historical average in the 1980s and early 1990s.

At least as far as household balance sheets are concerned, the expansionary impact of lower yields occurred via the housing market – they pushed down sustainable rental yields, raising the equilibrium level of the purchase price. This wasn't the only reason for the rise in prices. Thanks (most likely) to a relatively low rate of new building, against a backdrop of strong growth in the population and in the number of households, the rental cost of housing also rose significantly over that period (Chart 8). Whether rented or owned, living space has become scarcer and more expensive.

But both trends mattered, and the resulting increase in house prices, in its turn, meant that people were obliged to borrow more (than had their predecessors) to move up the housing ladder. This necessarily raised the aggregate stock of mortgage debt (new mortgages were larger than those they replaced). At the same time, however, those moving down the market were accumulating financial assets, the proceeds of their capital gain.

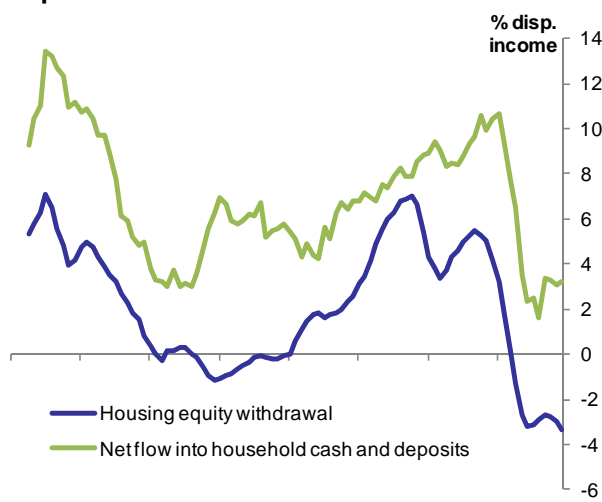
You can see this transfer in action in Chart 9. Swings in “equity withdrawal”, the extent to which the increase in the aggregate mortgage stock exceeds physical investment in the housing stock, were matched, by and large, by equivalent movements in household cash (and deposit) accumulation. And the result of this has been a very significant transfer of financial resources from young to old, one that leaves aggregate household balance sheets unchanged.

It's worth picking out a couple of points about this process.

First, the causation runs from house prices to balance sheets, not the other way around. This is very clear in the data. Statistically, growth of house prices “Granger causes” (i.e. precedes) growth of mortgage debt (and of assets); the opposite does not hold true.

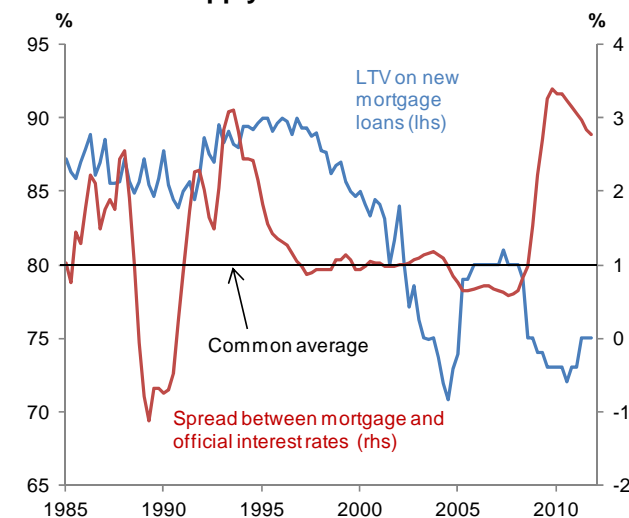
Second, the process can occur without any active equity withdrawal (i.e. any increase in mortgage debt among existing borrowers) or any active easing of credit supply by the banks. Over most of that period, in fact, median loan-to-value ratios on new mortgages declined and, although the spread between mortgage and risk-free interest rates tightened after the recession of the early 1990s, it did so only from above-average levels (Chart 10).

**Chart 9: Most equity withdrawal was transferred not spent**



Note: All figures are four-quarter moving averages  
Source: ONS and Bank of England

**Chart 10: Debt expansion did not coincide with easier credit supply**



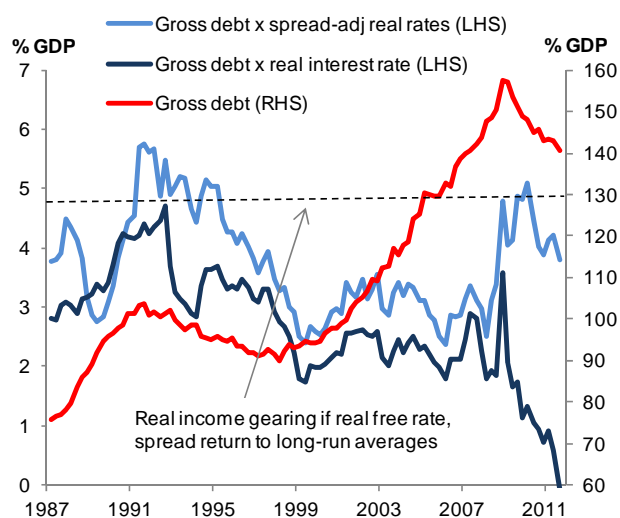
Source: ONS, Land Registry and Bank of England

Third, it can also happen without any increase in gross interest costs. Chart 11 plots the now familiar path of capital gearing in the non-financial private sector (gross debt:income). The other two lines multiply this ratio by some measure of long-term real interest rates – the yield on 10-year indexed gilts, and then the same rate plus the prevailing spread between risk-free and private-sector interest rates. If gilts are a reasonable predictor of future short rates, and if spreads are expected to remain unchanged, this second line tells you what someone should reasonably judge the long-run financing cost of private-sector debt to be<sup>3</sup>. On this measure, that long-term real cost was no higher in 2005 than it had been twenty years earlier.

<sup>3</sup> Net of any inflation-related capital gain on matching assets.



**Chart 11: Gearing in the non-financial private sector**



Note: Real interest rate given by yield on 10-year indexed gilts.  
Source: ONS and Bank of England calculations

None of this means that the private sector's wealth, or the rate of its additions to that wealth (saving), are necessarily adequate. Above average they may be, but the UK's population is ageing and it now has higher levels of public-sector borrowing and debt than in the past. Over time this will probably require some combination of lower (than average) private consumption, lower public consumption and longer working lives, with the last likely to do most of the leg work (see, for example, Weale (2011)).

But that's a separate point. Whether or not their historical averages are the right yardstick for private-sector wealth or saving, you learn nothing about them from the trends in gross borrowing alone. The evidence suggests that, at least until the middle of the last decade, the long expansion of gross private-sector debt occurred not, in the main, because borrowers became more profligate, or lenders more careless, but as a passive response to the gradual decline in long-run, risk-free interest rates. The proceeds were largely transferred, not spent, and ultimately, balance sheets grew precisely because the decline in interest rates made them more affordable.

### **Empirical evidence: Some information in rate of change of debt, none in relative levels**

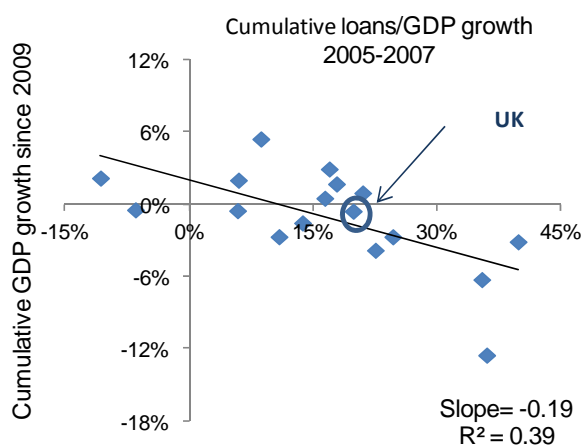
No doubt all this sounds unduly complacent. We've just been through the largest financial crisis in a century, one in which British banks were prominent participants. We know too that these crises are invariably preceded by rapid expansions of debt, including in the private sector, that they occur in closed as well as open economies (i.e. places in which, by necessity, changes on one side of the balance sheet are matched on the other), and that they tend to be followed by contractions in credit and relatively slow recoveries in economic activity. Surely the only common-sense conclusion is that the growing indebtedness of the UK's non-financial private sector was an important part of what happened – if not, why did the financial crisis occur? – and that it will remain a drag on growth going forward.

What must be true is that larger aggregate balance sheets are more exposed to interest-rate risk. If the property-related explanation for the expansion in household balance sheets is correct, then one important corollary is that the debt and the financial assets are held by different people – the debt by the young (roughly speaking), the assets by the old. In time, this intergenerational transfer may get unwound, via

bequests. But it may not (the old could yet consume their capital gain) and, in any case, the gross debt has to be serviced in the meantime<sup>4</sup>. Much of the expansion in balance sheets (I have argued) was due a secular decline in the long-run, risk-free rate of interest, and they are now more vulnerable to a reversal of that trend. I will discuss the risks and implications of a rise in long-term interest rates later on.

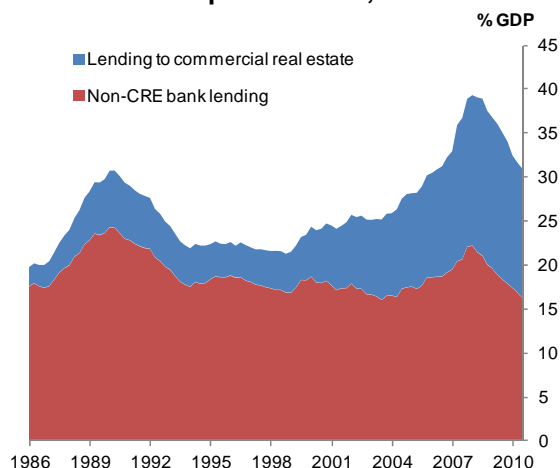
There's also some evidence that rapid growth in the stock of private-sector debt is a harbinger of bad things to come. In an interesting study, extending back over a century, Jorda et al. (2011) find that strong growth of credit is a valuable predictor of financial crises<sup>5</sup>. Using a more limited (post-1960) dataset, Randveer et al (2011) find that, all else equal, recessions are deeper the more rapid the growth of private-sector gearing in the preceding cyclical upswing. In research published in the mid-1990s, the Governor of the Bank of England found a similar pattern after the cycle of the late 1980s (King (1994)). More narrowly still, Chart 12 reveals a clear correlation, across the developed economies, between private-sector debt growth during the three years prior to the financial crisis and economic growth since then.

**Chart 12: High private debt growth prior to crisis correlated with weak economic growth since**



Note: Sample includes 15 European countries, Japan and the US  
Source: Eurostat, Bank of Japan and the Federal Reserve Board

**Chart 13: Commercial real estate and other non-financial corporate loans, UK MFIs**



Source: Bank of England

It also seems consistent with this that the fastest-growing class of corporate lending in the UK, ahead of the crisis, has been the worst-performing since. The near-doubling in non-financial corporate gearing between 2000 and 2008 was due almost entirely to the commercial real estate (CRE) sector (Chart 13). These companies were a focus of regulatory concern for some time before the crisis struck. The Bank's Financial Stability Report warned in mid-2006 that "unusually low premia for bearing risk" had prompted "rapid releveraging in parts of the corporate sector, for example among commercial property companies" and an

<sup>4</sup> The economic implications of such a transfer are ambiguous. In a world with no borrowing constraints and no active bequests a pure transfer of wealth from young to old would (for a time) reduce saving since, per year of remaining lifetime, the old profit by more than the young have lost. Allow for active bequests and the shift has no impact – the old simply hand the money back. In the presence of credit constraints, and an assumption that these are felt disproportionately by the young, aggregate consumption could decline. What is clear is that the intergenerational transfer engineered by the housing boom, and by the increase in public-sector debt, is now a political issue as well as an economic one – see Willets (2010).

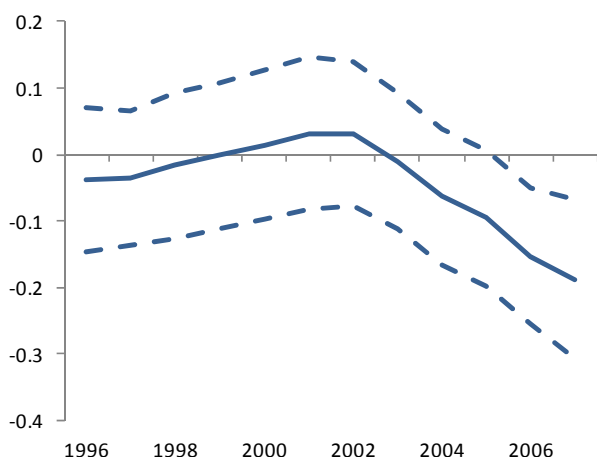
<sup>5</sup> Their particular point is that credit is better than monetary aggregates at predicting financial crises.

overvaluation of commercial property itself (prices were at levels “higher than might be expected based on rental income and risk-free interest rates”).

Sure enough, UK banks have written down a total of around £3bn of domestic commercial property lending in the past four years, and have provisioned for a further £7bn, 6% (in total) of the pre-existing stock. Despite the fact that secured lending is usually much less risky for banks, this amounts to a significantly higher rate of impairment (6%) than on their unsecured lending to firms.

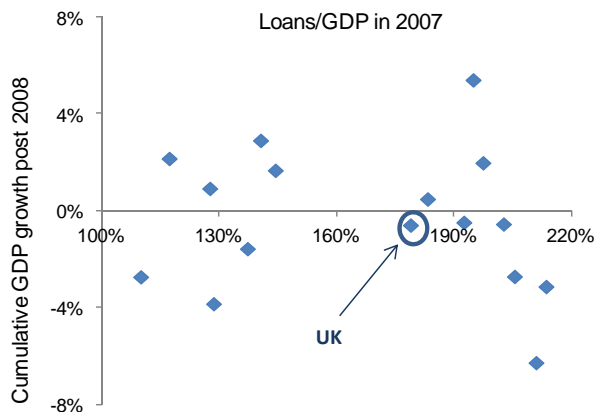
But debt growth is not a failsafe indicator. The estimated effects in the Randveer et al. study, for example, are small and statistically weak<sup>6</sup>. The correlation in Chart 12 disappears during the years before 2005 (Chart 14 plots the estimated coefficient from a rolling, cross-country regression of economic growth on prior debt growth).

**Chart 14: Rolling cross-country correlation between private loan-to-income ratio *growth* and subsequent output losses**



Note: Sample includes 15 European countries, Japan and the US. Ireland enters the sample only from 2001 onwards.  
Source: Eurostat, Bank of Japan and the Federal Reserve Board

**Chart 15: No correlation between post crisis GDP growth and pre-crisis private gearing**



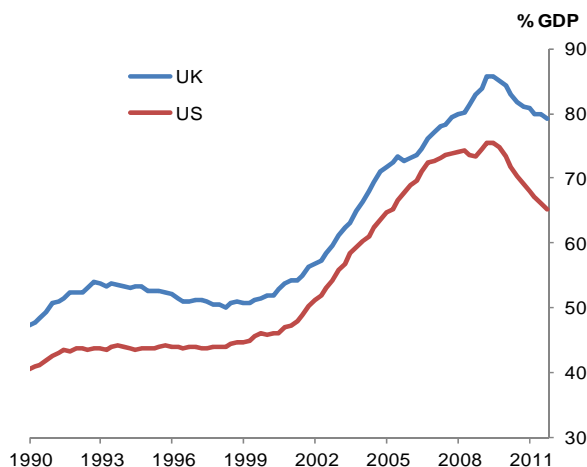
Note: Sample includes 15 European countries, Japan and the US  
Source: Eurostat, Bank of Japan and the Federal Reserve Board

As for relative levels of indebtedness, there is little evidence that they tell you much of anything. Chart 15 plots the cross-country pattern of post-crisis growth against pre-existing levels of gearing – there is no correlation at all. Using a longer set of data, Cecchetti et al (2011) supplemented standard empirical models of cross-country growth with measures of gross indebtedness in the non-financial economy. They found some indication that higher levels of public-sector or corporate indebtedness debt impair future growth (all else equal). But this is true only beyond certain thresholds<sup>7</sup> (84% and 88% of GDP respectively); even then the effects are small, while household gearing seems to have no bearing at all on subsequent economic performance.

<sup>6</sup> An increase of 50% points in the debt-to-GDP ratio is associated with a reduction in subsequent economic growth of only 0.37% points; the standard error on the estimate is 0.26% points.

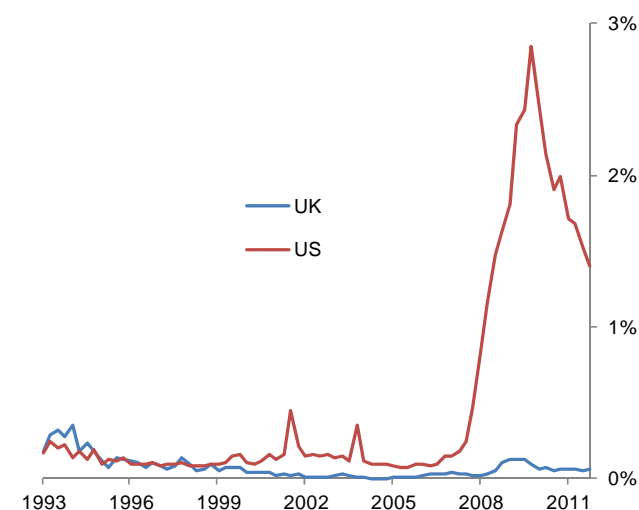
<sup>7</sup> This result has echoes of what Reinhart and Rogoff found for the predictability of defaults on government debt

**Chart 16: Mortgage debt**



Source: ONS and Federal Reserve

**Chart 17: Write-off rates in US and UK**



Source: Bank of England and Federal Reserve

This last finding is matched very strikingly by a comparison of loss rates on US and UK mortgages. In 2007, mortgage debt was worth 79% of GDP in the UK, 74% in the US (Chart 16). Yet, since then, write-downs have been over 20 times bigger in the United States (Chart 17).

Furthermore, because of the size of their overseas balance sheets, and in particular their exposure to the riskier end of the US mortgage market, you find the same imbalance in losses of UK banks specifically. If you include write-downs on related securities, as well as direct impairments on loans, the major UK banks have been hit around 15 times harder by non-UK than by UK mortgages (Chart 18). Overall, around three-quarters of UK banks' losses have been incurred on their non-UK assets.

In my view, we should not be terribly surprised by the underperformance – despite lower levels of gearing – of US mortgages. The UK is a much more crowded country. So the cost of space – and, for any given extent of owner-occupation, the ratio of mortgage debt to income – is bound to be higher than in the US<sup>8</sup>. But this tells you nothing, in and of itself, about the riskiness of those loans and, in other respects, the US market always looked more vulnerable. The US had experienced a long boom in house-building and a sharp rise in spare capacity, while the UK had seen the opposite. Rates of turnover had also been relatively high in the US but low in the UK. The first meant that prices were likely to fall further in the US (as they have done). The second meant that a greater proportion of homeowners were buying, and borrowing, at the top of the market, increasing the proportion of lending that, for any given fall in prices, would end up in negative equity<sup>9</sup> and that was vulnerable to any such fall. (Chart 19 plots average loan-to-value ratios across all home-owners.) Finally (and perhaps most importantly), mortgages are “non-recourse” in many US states:

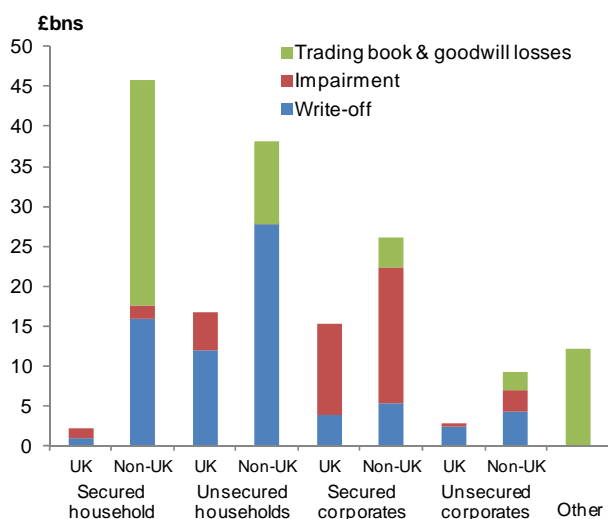
<sup>8</sup> A forthcoming paper by David Miles has a fuller discussion of this issue.

<sup>9</sup> According to the NMG Consulting survey, around 2% of households (4% of mortgages) were in negative equity in 2011. In the US, the figure was 22%.

the negative equity, and therefore more of any economic loss, ends up with the lender rather than the borrower.

Nor, given both the size and the rate of expansion of their overseas balance sheets, should we be that surprised by the finding that UK banks have lost more on non-UK assets than on domestic lending. At the end of the 1990s, UK-owned banks had estimated overseas exposures of £500bn or so. By mid-2008 these had grown to over £2,500bn (Chart 3, above, plots these balance sheets relative to UK GDP). This is significantly more than their exposure to the domestic economy, around twice (specifically) their lending to the UK non-financial private sector (Table A). In terms of changes, these estimates imply that overseas assets contributed almost six times more to the growth of UK-owned banks' aggregate balance sheets than did loans to domestic households and non-financial firms.

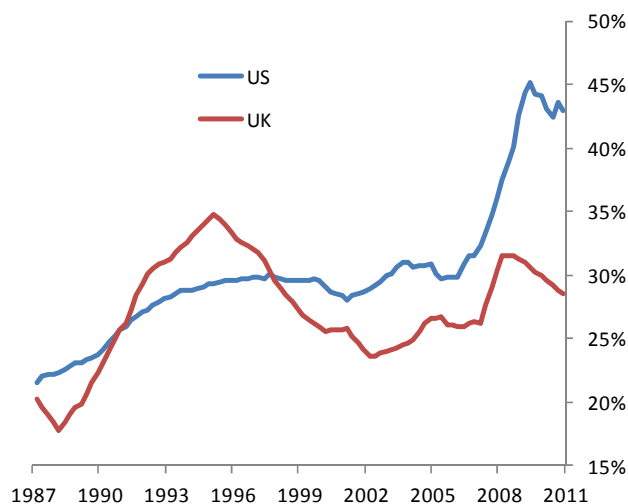
**Chart 18: Losses of UK banks**



Note: Goodwill impairments are calculated on a pro-forma basis and may be subject to error. Impairments and write-offs are taken from FSA regulatory returns. Due to sampling and definitional differences, these may not match those disclosed in published accounts or in the Bank of England's Bankstats.

Source: FSA regulatory returns, published accounts and Bank of England calculation

**Chart 19: Ratio of gross mortgage value to housing wealth in US and UK**



Source: ONS and Federal Reserve

Table A: Estimated assets of UK-owned banks <sup>(a)</sup> (% GDP)					
	Non-UK <sup>(b)</sup>	UK <sup>(c)</sup>	Of which		
			Other financials <sup>(d)</sup>	Loans to non-financials	UK securities
End-1999	60	94	23	63	8
End-2008	182	157	52	84	21

Notes

(a): Excludes derivatives and intra-group claims.

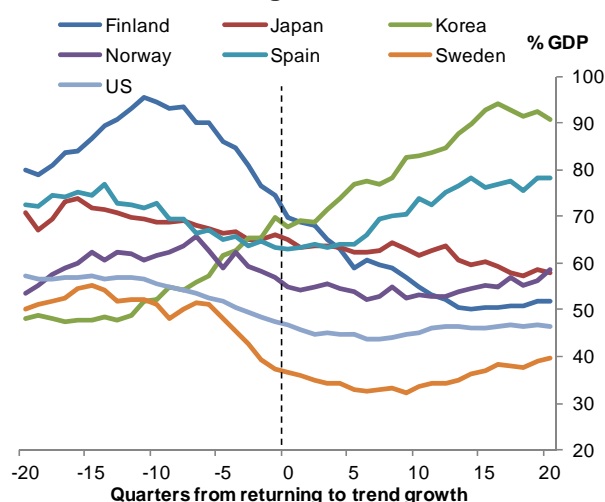
(b): Non-UK figure on an ultimate-risk basis for end-2008; pre-2004 estimates for ultimate-risk exposure based on immediate-borrower data.

(c): UK aggregate uses published Bank of England data; allocation assumes same split for UK-owned banks as for all UK-registered banks (include foreign-owned institutions).

(d): Loans, including under repo, to foreign-owned, UK-registered banks plus non-bank financial entities.

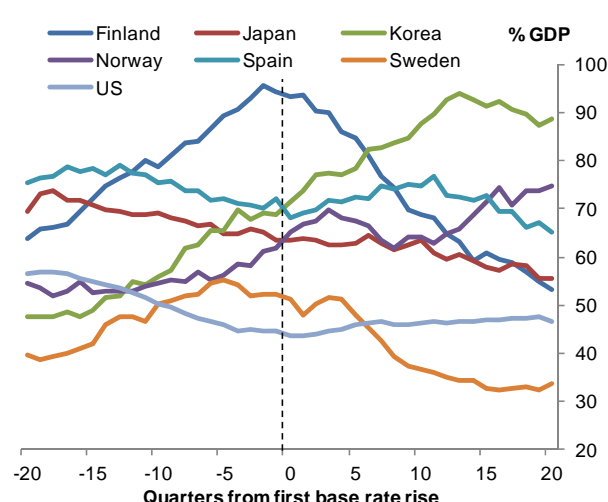
Finally, it is not the case, looking at evidence from other post-war financial crises, that the resumption of more normal rates of economic growth, and the withdrawal of monetary easing, only occur once gross debt:income ratios return to pre-crisis “norms”. In fact, it is hard to discern any sort of link between private gearing and the timing of post-crisis recoveries. Chart 20a plots private non-financial gearing during seven post-war financial crises (defined as such by the IMF), where recovery (the “zero” date) is defined as the point at which growth first gets back to trend. Chart 20b does the same, but with the recovery point instead defined as the date of the first hike in official interest rates.

**Chart 20a: Evolution of debt:GDP ratios when GDP returns to trend growth**



Note: Only includes non-financial private sector debt.  
Source: Bank of Japan, OECD Main Economic Indicators, Randveer, Uuskula and Kulu (2011) and Reinhart and Rogoff (2008b)

**Chart 20b: Evolution of debt:GDP ratios at first rise in base rate after financial crises**

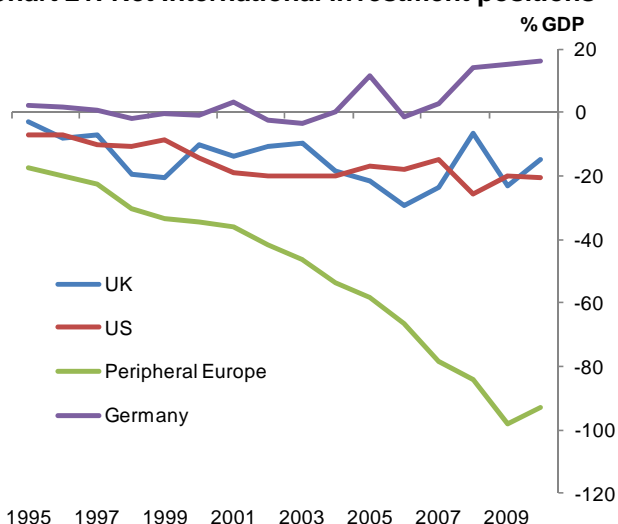


Note: Only includes non-financial private sector debt.  
Source: Bank of Japan, OECD Main Economic Indicators, Randveer, Uuskula and Kulu (2011) and Reinhart and Rogoff (2008b)

## Conclusions

One often hears that the financial crisis occurred because “we all borrowed too much; it will only end when gross debt ratios return to some historical average; and as “the most indebted country in the world”, that process will presumably, therefore, take longer – and optimal monetary policy stay looser – in the UK than anywhere else.

**Chart 21: Net International investment positions**



Source: Eurostat, Federal Reserve Board and Bank of England calculations

I find this unconvincing. For one thing, it ignores entirely the assets side of the balance sheet. This matters because, if the implication that the country as a whole is unusually indebted to the rest of the world, it is inaccurate. As Chart 21 demonstrates, the UK’s net overseas liabilities are moderate. It matters too because, to the extent they take account of balance sheet effects at all, most models of consumer and investment demand are driven not by gross debts but by net wealth. On this score the position of UK households is also unexceptional (Chart 6).

Second, it turns out that relative levels of (gross) debt are in any event pretty uninformative, either about *ex ante* risk (as judged by *ex post* losses suffered by lenders) or about wider economic performance. There is some information – some – in prior rates of change of domestic debt. But there is no cross-country correlation between prior levels of private-sector gearing, ahead of the crisis, and subsequent rates of GDP growth. Most strikingly, mortgage write-downs in the UK, where the stock of debt is relatively high, have been orders of magnitude lower than in the US. Overall, around three-quarters of the losses of UK banks have been incurred on their non-UK assets.

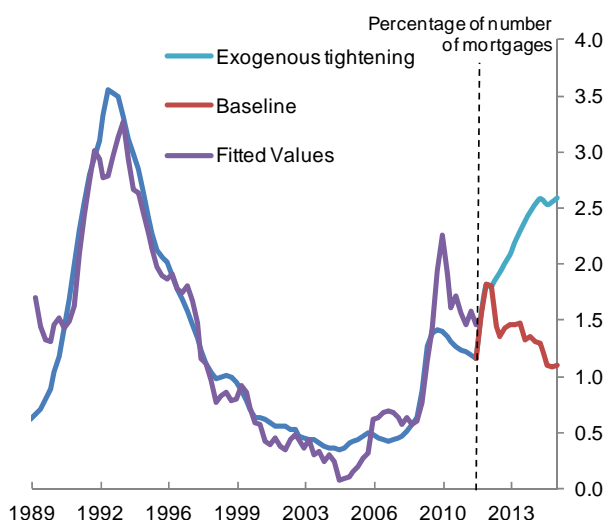
It is hard to imagine that the subsequent tightening in domestic credit supply, or the weakness of UK growth, would have been as severe had its banks not had such extensive overseas balance sheets going into the crisis<sup>10</sup>. Symmetrically, any abatement in overseas risks (which now reside more in the Eurozone than in the US housing market) would have favourable effects on the funding costs of British banks and on the supply of credit to the domestic economy. This, in its turn, could warrant a withdrawal of monetary accommodation by the MPC even if domestic debt:income ratios remain well above some notional historical “norm”.

<sup>10</sup> This assumes that losses on one part of the group’s balance sheet can affect the funding costs, and supply of new credit, in another. But that’s exactly what happens during financial crises, and precisely why they’re costly – probably because of severe agency problems, the bad asset pollutes the supply of new credit to a perfectly good asset. For some recent evidence on this, see Mora and Logan (2010) and Cetorelli and Goldberg (2011).

This is not to say that domestic losses will necessarily stay at these levels. Regulators remain concerned about the vulnerability of UK banks' balance sheets to any slowdown in UK economic activity. Even if the run-up in private-sector debt was matched, in aggregate, by faster accumulation of financial assets, it seems very unlikely to have been the same people doing both. As a result, the private-sector balance sheet is more sensitive to economic shocks, including higher interest rates.

But, in my view, this increased sensitivity should not be seen as an over-riding deterrent to any withdrawal of the monetary stimulus, if and when that becomes justified by other considerations. Chart 11 includes a dotted line measuring what would happen to (real) income gearing in the non-financial private sector if, at current levels of debt, real risk-free rates and private-sector spreads returned to their respective long-run averages (2.6% and 0.9% points respectively). The real burden of debt would clearly rise, but not dramatically so.

**Chart 22: Six months mortgage arrears and model forecast**



Source: ONS and Bank of England calculations

The estimated interest-rate sensitivity of problem mortgages, in particular, is shown in Chart 22. It plots the proportion of loans in arrears of six months or more against a very simple fitted model that feeds off interest payments (lagged four quarters), and a couple of lags of unemployment. As simple as it is, the model fits pretty well<sup>11</sup>. It is used to simulate two alternative futures – a “baseline” case, in which mortgage spreads stay where they are and Bank rate and the unemployment rate follow the market forwards and the consensus forecast respectively; and an “exogenous tightening” case, in which nominal Bank rate rises to 5% - consistent with real risk-free rates around their long-run average – but with no mitigating compression in mortgage spreads and the second-round impact on unemployment allowed to operate in full.

This tightening case seems pessimistic to me. More likely than not, in practice, any degree of normalisation would be accompanied by a compression of mortgage spreads and, as demand strengthens, downward pressure on unemployment. Over time, assuming that high rates of saving in the emerging world were a key

<sup>11</sup> Though it can explain most of the decline in arrears, the model slightly over-predicts the share of problem mortgages since 2009. The latest reading for long-term arrears, for example, is 1.2% of the stock, versus a predicted value of 1.5%, a one-standard-deviation gap. One possibility, broadly consistent with the analysis of the FSA, is that forbearance by lenders is slightly higher than in the past, in which case the actual data understate the true picture (using other sources, the FSA estimates that, without forbearance, the share of long-term arrears would rise to 1.7%). But again, one should put this in perspective. On reasonable estimates of loss given default, an additional 0.3% points on the rate of arrears would have meant another £600m in mortgage write-downs over the past three years. This is negligible when compared with the near-£50bn lost on non-UK mortgages.



driver of the downwards drift in real interest rates<sup>12</sup>, a permanent return to that long-run average is also likely to involve stronger growth of domestic demand in those economies (“rebalancing”).

But even then, at an official interest rate that’s several standard deviations above the current forward curve, fitted arrears remain well below their levels of the early 1990s, that much further below levels that would produce mortgage losses remotely on a par with those UK banks have suffered in the US. This is a reflection, in part, of how high interest rates were in the early 1990s.

I should emphasise that I am not, by any means, advocating such a withdrawal any time soon. With the domestic economy still fragile, and – even after the ECB LTRO – funding costs for European banks (including the UK’s) still high, I thought it was right to vote for further asset purchases last October and, again, in February of this year.

That said, it is worth thinking ahead. And my own view is that, if we focus solely on domestic debts (residential mortgages in particular) we are in danger of being too parochial about the key risks facing the economy. What distinguished the UK was not so much the size of its mortgage market but the extent and riskiness of its banks’ overseas balance sheets. It is there that most of the losses were made, and there still, in my view, that the larger risks reside. As such, it is perfectly possible that funding and credit conditions could improve, and a withdrawal of monetary accommodation become warranted, quite independently of the gearing of domestic creditors.

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<sup>12</sup> Most economists – myself included – see an intimate connection with high rates of saving (and demand for fixed-income assets specifically) in the emerging economies, in which case any rise in rates is likely to go hand in hand with faster growth of domestic demand in those economies. But there may be other factors at work – Tucker (2011), for example, suggests that, by affecting risk and liquidity premia, global monetary policy may, in fact, have contributed to the decline in long-term real rates (though it’s hard to believe it can account for more than a small part of it).

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