



BANK OF ENGLAND

Speech

Scanning the Horizon

Speech given by

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I am very grateful to Heena Samani and the horizon-scanning team for their help in preparing this speech.

It's a real pleasure to be invited to join you at what I know is a very important birthday for the Building Societies Association (BSA). The Bank of England is even more ancient but I think it's very impressive for a trade association to make it to its 150th year. I can think of various ways to celebrate this. Perhaps, given recent developments in longevity, we could ask Robin to keep serving until his 150th year? Or you could write to new-born trade associations such as UK Finance and offer them some mentoring, which I'm sure Stephen Jones would be delighted to accept. Or I could give you a really valuable gift by cutting my speech in half and releasing you early for some extra caffeine!

At any rate, given the significance of the occasion I am not surprised to see such a full room this morning. In fact it reminds me of another meeting I recently took part in at the PRA, in a room we call the "auditorium" at 20 Moorgate. The room was absolutely jam-packed with staff from the PRA and the wider Bank – standing room only, in fact if one more person had entered it would have been a clear health and safety breach. My colleague Vicky Saporta was in the Chair, and this was a tough job: arguments raged, data was questioned, competing views were offered and challenged.

Why so much excitement at the PRA? After all, boring is good in our line of work. Were we perhaps having our own private Brexit debate, with Vicky in the role of speaker? Were we changing our pension scheme, which is in my experience the only topic that gets people hotter under the collar than Brexit? Or were we picking next year's Charity of the Year?

None of the above. This was a meeting on what we call "horizon-scanning", which we have made a strategic priority for the PRA as we come out of the post-crisis reform period. What is this activity? Why have we made it a priority? And why does it generate so much interest from our staff?

This part of our work has its origins in two simple observations about financial history. The first is that crashes and financial crises are an enduring phenomenon¹. The second is that as memories of the most recent crisis fade, market participants often gravitate back to bad practices, sometimes in a new-fangled form, leading to the next crash. We would delude ourselves if we thought that, unless we wish to crush all risk out of the financial system, regulation can entirely eliminate these phenomena. However, only a decade on from one of the most spectacular and damaging financial crises the world has ever seen, we can set ourselves the more modest objective of leaning strongly against them, to make things less bad next time round.

This is what our horizon-scanning activity is for. It aims to pre-empt and mitigate risks to our objectives which arise in two main ways. First, firms may risk up in ways that are excessive or not properly controlled or capitalised. Second, the new regulatory framework is in part designed to change firms' behaviours, but as the framework settles down market participants have some short-term private incentives to find the weak spots in it and push business into those cracks – in other words, to conduct regulatory arbitrage. Often things

¹ See for instance: *Panics, Manias and Crashes* – Kindleberger et al; and *This Time is Different* – Reinhart & Rogoff

we should worry about are a combination of these two things. And it is sometimes inherently harder for the regulator to observe and act on these risks, relative to asking important but simpler questions such as whether a firm meets its capital requirements.

Now I appreciate that that may all sound rather philosophical. So let me make it more real for you by giving some concrete examples of issues we have been working on in this broad area.

As we mark today the 150th birthday of the BSA, an obvious place to start is the UK housing market. For deposit-takers including banks and building societies, this is the biggest single loan exposure, and it is also the biggest liability of UK households. And in insurance, firms are taking on more exposures to housing in response to the developing financial needs of consumers. So this will always be an important asset class for the PRA. But there are a number of areas to which we are paying particularly close attention currently.

First, as all borrowers and lenders are well aware, we have seen something of a price war in the mortgage market over the last couple of years. This may be good news if you are, for instance, a young supervisor in the PRA looking to buy your first property. But it is less good news if you are a lender concentrated in mortgages, given the impact on net interest margins. The response of such lenders has been entirely unsurprising: a material move up the risk curve. You can see this absolutely clearly in several ways: a dramatic fall in spreads demanded over the risk-free-rate; a marked shift in the high-LTV share of new lending by building societies; and a significant increase in firms' appetite for higher LTV and higher LTI lending (see Charts 1 to 4). Now, it may be that these shifts are well within firms' management capabilities, and they should be well captured by our capital framework. But we should be watching them like a hawk.

Second, UK mortgage risk-weights for large firms using internal models have been declining significantly over the last decade – from an average of 15.1% in 2009 to 9.7% in 2018. In other words, the capital requirement which results from that part of our regime ("Pillar 1") has dropped by one third (see Chart 5). It is also notable that the average modelled mortgage risk-weight in the UK is lower than in many other jurisdictions (see Chart 6).

This trend has essentially been driven by two things: a cyclical fall in modelled Probability of Default because realised defaults have been low; and a fall in modelled Loss Given Default due to rising house prices. Both of these factors are real, and our teams make strenuous efforts to ensure that firms are modelling them in a suitably prudent way. Still, I think we should approach this trend with a very sceptical eye and need to consider whether there is a case to impose more floors in firms' models – particularly given the current stretch in some measures of house price valuation.

As to the level of risk-weights, a vital mitigant against cyclical modelling of mortgage credit risk is of course our stress-testing regime, which requires firms to carry today the amount of capital they would need to keep lending through a severe housing bust. In some ways it is a good thing if the stress-testing part of our regime

(Pillar 2) takes more of the strain, because it results in buffer requirements which should be more useable in a stress than Pillar 1 minima. And our Pillar 2A regime should capture concentration risk and any other aspects not captured by Pillar 1. But we should test ourselves on this, not least given that firms' published CET1 ratios derive from Pillar 1 requirements. One way to do this is to compare the risk-weight level to some other crude benchmarks – such comparisons do not raise major worries, but nor do they suggest that risk-weights should be any lower (see Chart 7). Another way is to explore more sensitivities in our stress-testing, and in particular to examine where non-linearities arise for higher levels of house price falls than those we assume in our main scenarios.

A number of safeguards exist in this area: our moving of firms away from 'Point in Time' modelling approaches; the leverage ratio; and (further down the track) the Basel 3.1 output floor. But despite this, we should be very cautious about any significant further moves down in Pillar 1 risk-weights for UK mortgages – in part because this exacerbates level-playing field issues given standardised risk-weights do not move in the same way, a point which will not be lost on the vast majority of the BSA's members.

Third, on the insurance side we have been putting a lot of effort into making sure that equity-release mortgage holdings are treated appropriately on insurance companies' regulatory balance sheets. We think it likely that this product will grow in the UK for reasons unrelated to financial regulation, and that it makes sense for annuity-writers to be an important part of the picture. But this has been a classic example of a weak spot in the regulatory regime, which was simply not designed with this product strongly in mind. The result of this has been an excessively wide variation of approaches for these assets at insurance companies, with practices at the more aggressive end of the market presenting a risk in our view to policyholders and to our competition objective. We have therefore shored up this part of our framework and put in place a much more solid basis for this asset class going forward. I know that some building societies have exposures to this asset class as well, and would urge them to proceed with caution given the complexities involved.

So even within the important but relatively straightforward asset class of UK residential mortgages there are several juicy topics for our horizon-scanning enthusiasts to get their teeth into. Fortunately, or unfortunately depending on your approach to life, there are further targets available if we move onto other asset classes – asset classes which I very much hope are much more remote to building societies!

One such area, in which both the Financial Policy Committee and Prudential Regulation Committee have been taking a keen interest, is leveraged lending – in other words lending to highly-indebted companies. We have said a lot about this over the last year so I will confine myself to a brief comment only. That comment is that sometimes horizon-scanning does not require binoculars, because the object of study is already at the front gate. I think it would be very odd if we did not pay close attention to a class of lending which grew globally at a rate of 16% last year, and in which there has been a very significant slide in underwriting standards. Further, much of the lending is being funnelled through banks to a variety of end-investors who may or may not understand what they are getting into. A key determinant of risk in these products is the

leverage, but measuring leverage is difficult. Analysts often adjust leverage measures to remove large one-off costs and account for optimistic future growth in earnings. These so-called 'add-backs' have been growing steadily in recent years, so the risk metrics in an analyst's company report are increasingly likely to contain some heroic (or unrealisable) assumptions. The potential risks to banks here are both direct, and indirect through the impact of corporate indebtedness on the economy. Compared to this, the move up the risk curve of UK lenders in the mortgage market looks rather benign. Our job is to make sure that both moves are properly managed and capitalised in the firms we regulate.

This is much easier said than done for another type of corporate lending, largely carried out by investment banks. This type of lending is secured against equity holdings of the borrower, often in a related entity – so-called "margin loans". The first observation about this is that it will often create wrong-way risk because the value of the collateral may well be linked to the credit-worthiness of the borrower, which can cause problems in times of stress even though collateral haircuts tend to be 30-50%. Largely due to this, we estimate that banks in London lost more than €1b in a single deal in 2017. But the broader observation is that this type of lending is not well captured by today's capital framework for banks – in part because it tends to sprawl awkwardly across credit, market and operational risk requirements. I don't ask you simply to accept this statement at face value – our analysis (presented in anonymised form in Chart 8) of the capital held against one such recent exposure by a range of banks illustrates it well: even allowing for differentiation in terms across firms, this level of variation simply cannot be right. In this sense, just as the leveraged lending issue is akin to the UK mortgage risking-up issue, these margin loans have an echo of the problems we've been tackling on capitalisation of equity-release mortgages – complexity creates a weakness in the system.

Another area our scanners are always interested in is the border zone between different industries – and in our case, in particular the border zone between banking and insurance, given we oversee both of these industries. There are a number of cross-border activities which we are keeping an eye on. One is the use of credit insurance to optimise capital positions of banks. This is a perfectly legitimate business and not one that we object to on either side of the border. But we do of course need to be satisfied that a risk which disappears from a bank's capital requirement has genuinely been moved across the border², and that the receiving insurer is properly reserving and capitalising for that liability. Another area of interest is where insurers are taking on illiquid or structural risks from banks, for instance assuming the risk on long-dated inflation swaps. It is natural that some of these risks should gravitate towards the parts of the financial system which can bear them more efficiently. But we need to be sure that this isn't just because regulation on one side of the border is missing something which has been captured on the other.

I could provide you with numerous other examples of items being scrutinised by the beady-eyed horizon-scanners within the PRA and wider Bank. Sometimes these occur beyond our shores and we don't have a direct interest, for instance if large banks in other jurisdictions were found to be window-dressing by hauling in exposures very briefly in order to secure a lower rating for GSIB capital charges which are set

² See Supervisory Statement: <https://www.bankofengland.co.uk/prudential-regulation/publication/2013/credit-risk-mitigation-ss>

on an end-of-period basis. Or I could point to the number of risk-transfer trades within banking that our teams have to reject because they are pushing the boundaries of what is prudent. But I prefer to leave you with one of my own favourites, which our team has christened “missing leverage”.

I have long held the view that the capital regime which existed in the UK before the financial crisis was a dangerous one because it did not include a leverage requirement. In other words, the only metric we used was based on risk-weighted capital requirements, which: first, can be subject to incentive and analytical weaknesses where modelled and political weaknesses where set by legislators; second, unless perfectly calibrated by regulators can incentivise the wrong behaviour by firms, such as writing deep out-of-the-money options; and third, can allow banks to become very highly leveraged which is risky even if their asset quality is high. The opposite approach – to ignore the relative riskiness of a bank’s assets in setting its capital requirements, and hold them only to a leverage ratio – is equally dangerous. This is not a difficult point to grasp – it does not make sense to make a lender hold no more capital against a 100% LTV mortgage than it has to hold against a 50% LTV one.

The answer to this is to use both metrics on a ‘higher of’ basis – and this is where the post-crisis debate has settled both in Basel and here in the UK. I know this is a sensitive topic with the building societies sector given its concentration in mortgages and the implications for bail-in firms – but I think it makes sense.

Although the leverage ratio is sometimes presented as a simple measure, and indeed is often simpler than the risk-weighted side, it is not totally straightforward and there are some important judgements which go into calculating what banks’ exposures actually are for leverage ratio purposes. One area we should pay close attention to is where similar forms of financing – specifically repo, collateral swaps and synthetic prime brokerage – are captured differently in the leverage exposure measure.

Of these I think the most important one to watch is collateral swaps. Under the Basel framework, following extensive debate it was agreed that repo transactions would be captured in the leverage exposure measure by including the cash leg of the repo plus an add-on for counterparty credit risk (CCR). This seems a sensible outcome, and it is reasonable therefore to test whether the equivalent treatment for collateral swaps, which captures only the CCR add-on in the exposure measure, really captures all the leverage firms are taking on. This is a big business – for example, a recent survey of 14 UK-based broker dealers found a stock of £1.7 trillion in collateral swaps. As a thought experiment, had Basel chosen to capture these exposures for leverage purposes in the same way as it captures repo (so counting the collateral borrowed, in the same way as the cash leg is counted for repo) then, under some worst case assumptions, and bearing in mind that the data can vary from year to year, the aggregate leverage ratio of firms in our sample could fall by 50 basis points (from 5.3% to 4.8% - see Chart 9).

Two other parts of the leverage framework should also be in the sights of our horizon-scanning teams as they ask whether we are missing anything important. First, the proportion of repo activity which is netted

– which (based on initial data) grew from 14% to 19% from 2015 to 2017 for firms in our sample. This matters because the netting of cash payables and receivables in repo transactions reduces the exposure measure – this seems perfectly reasonable, but is out of line with the general philosophy of the leverage ratio of not recognising collateral. The question is whether these netting benefits will prove robust in a major stress – if not, the aggregate leverage ratio for firms in our sample would fall by up to 70 basis points.

Second, the growth in synthetic prime brokerage (sometimes the clue is in the name – “double-leverage” is another classic of the genre, and one we have recently issued more guidance on in order to head off unsafe practices). Prime brokers can provide exposure to an asset via repo or synthetically using a total return swap, and the synthetic approach now accounts for around half of the prime brokerage activity undertaken by firms in our sample. The exposure measure does a reasonable job of capturing this activity, by requiring the firm to capitalise the effective notional position. But firms can hedge the position and thus avoid capitalising much of it where they are able to offset two client positions on equal, opposing TRSs. We should keep testing how robust these “internalisations” are likely to be in stressed conditions, to ensure that we have captured the impact of these exposures on firms’ capital positions in the same way we’ve already captured their effect on liquidity – if they came unstuck because of clients withdrawing positions then our rough worst case estimate of the impact on firms’ aggregate leverage ratio is 10 basis points.

I make these points on missing leverage not to suggest that we have any short-term intentions to re-litigate these issues at Basel or elsewhere. Nor is this a complete assessment, focusing as it does on the prudential angle as opposed to market liquidity considerations. I make them to illustrate the point that it is sensible for us to maintain a spirit of active enquiry about these sorts of issues, and to track developments so that we can intervene if we are concerned that the regulatory system is being arbitrated or simply encouraging the wrong behaviour at firms.

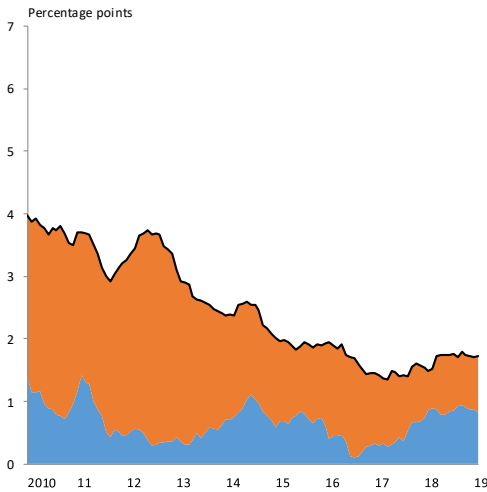
Conclusion

We, together with many others, have done a huge amount to make the financial system safer over the last 10 years. But the lesson of financial history is that unless we are absolutely vigilant, and keep questioning both firms and ourselves about evolving and emerging developments in the markets we oversee, then this safety can easily slip through our hands.

So our horizon-scanning will be an important part of our effort in the coming period. And as the PRA is holding itself to a flat nominal budget this year I would like to finish by asking any birdspotters present here today to lend us their binoculars, in the national interest.

Chart 1: Since 2010 we have seen a significant fall in mortgage spreads, particularly at higher LTVs

Quoted 2-year 75% LTV spreads over risk-free rate



Source: Bank of England, MoneyFacts
Notes: Risk-free rate is defined as 2 year overnight indexed swap (OIS)

Quoted 2-year 90% LTV spreads over risk-free rate

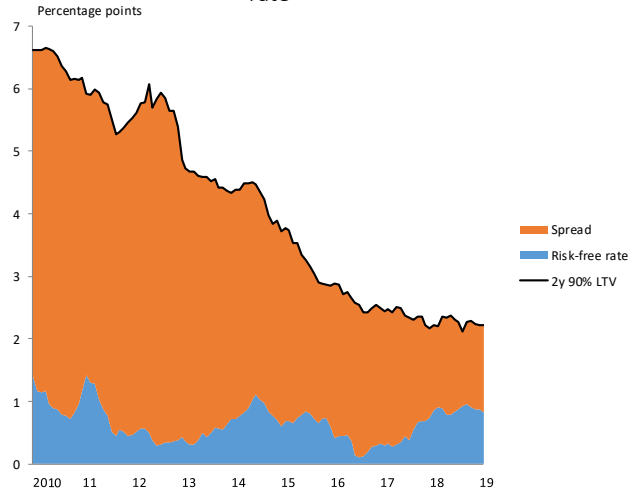
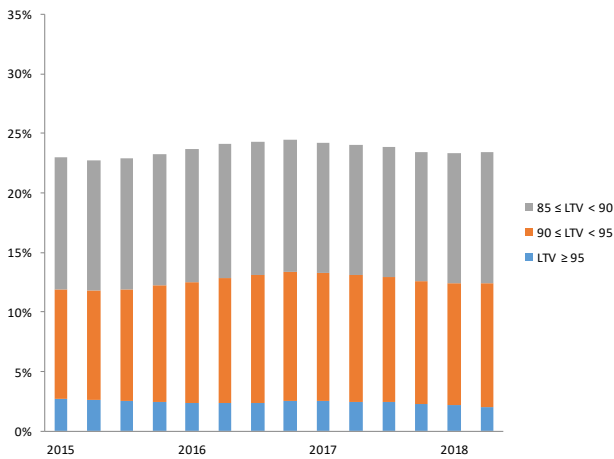


Chart 2: We have observed a marked shift in the share of new mortgages at high LTV by building societies

Major UK Lenders: share of new mortgages at high LTV



Source: FCA ProductSales Database
Notes: 'Major UK Lenders' include the large UK Banks and Nationwide. 'Building Societies' excludes Nationwide.

Building Societies: share of new mortgages at high LTV

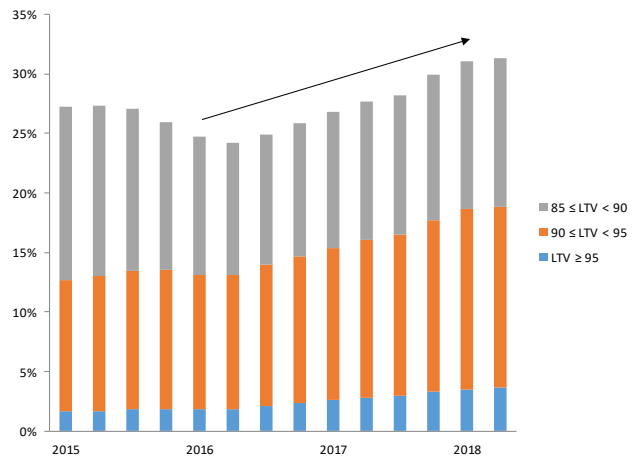
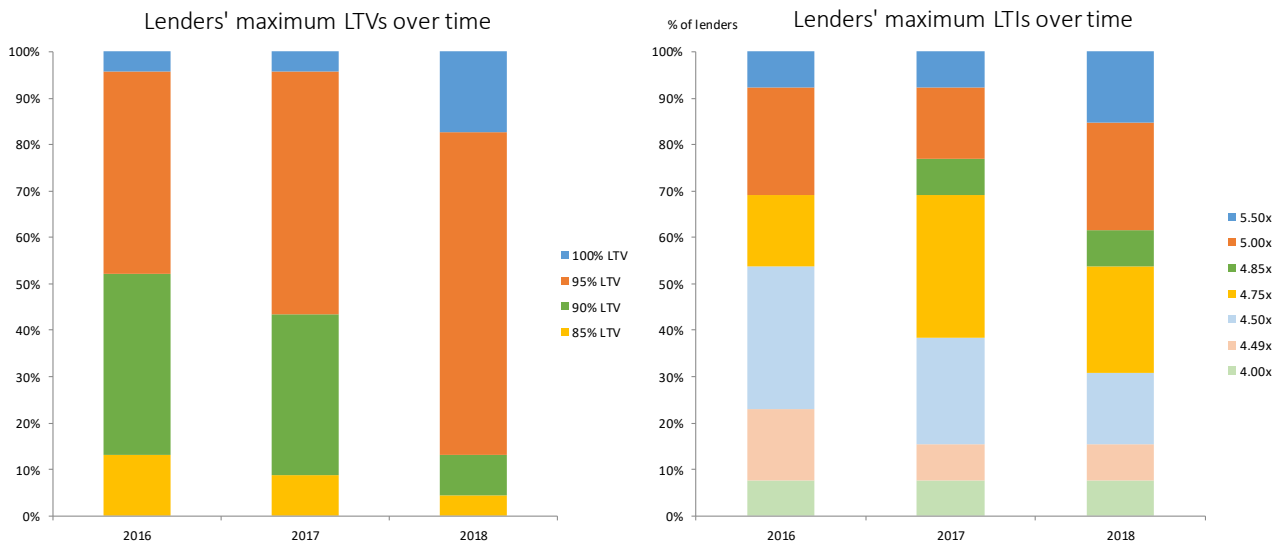
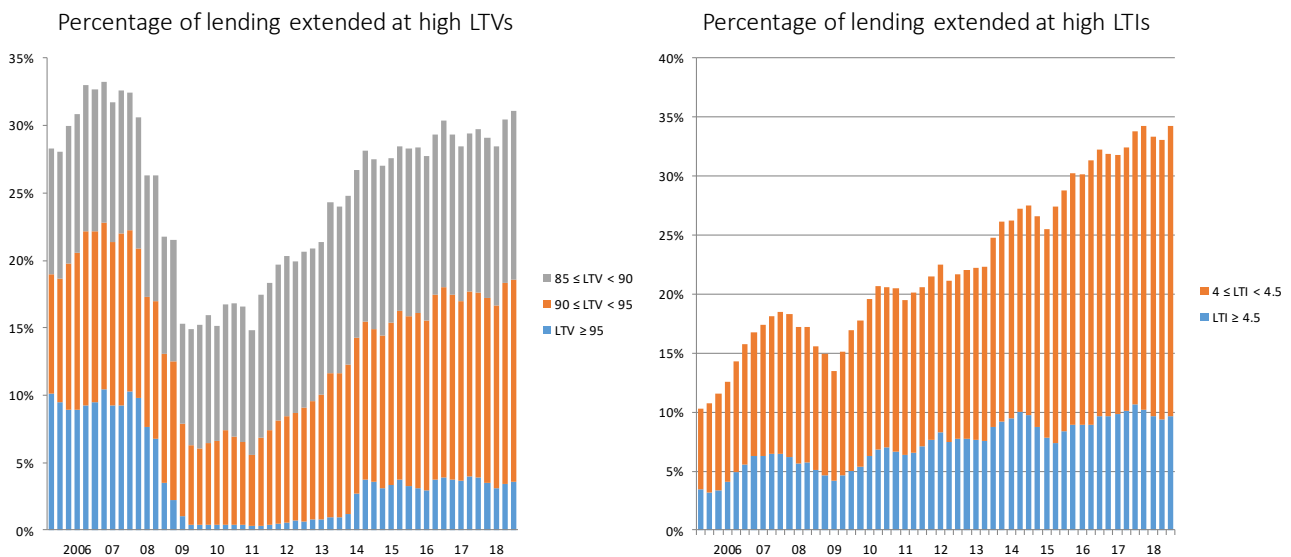


Chart 3: Firms' risk appetite for higher LTV and LTI lending has been increasing over the last few years



Source: Published criteria
 Notes: 'Lenders' include the large UK banks, Nationwide and a combination of the smaller banks and building societies

Chart 4: The percentage of lending at high LTV and LTI has been increasing over the last 10 years



Source: FCA Product Sales Database
 Notes: 'Lending' is whole UK market (all regulated mortgage contracts) for owner-occupied mortgages. This includes lending by the major lenders and building societies shown in Chart 2, along with relevant lending by all other firms

Chart 5: The average UK mortgage IRB risk-weight has dropped by one third since 2009

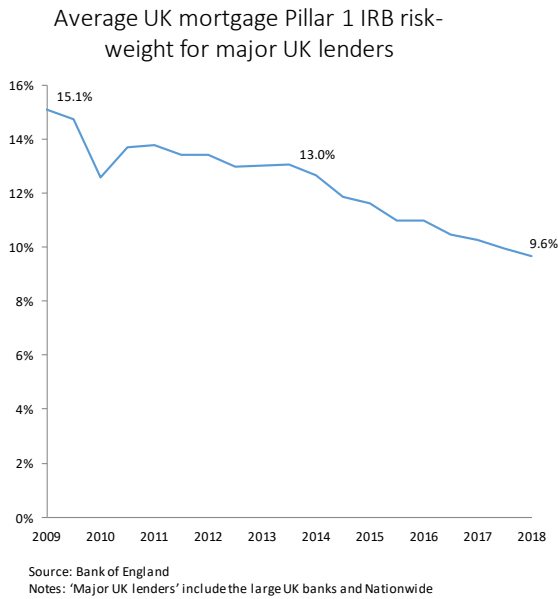


Chart 6: The average mortgage IRB risk-weight is lower in the UK than in many other jurisdictions

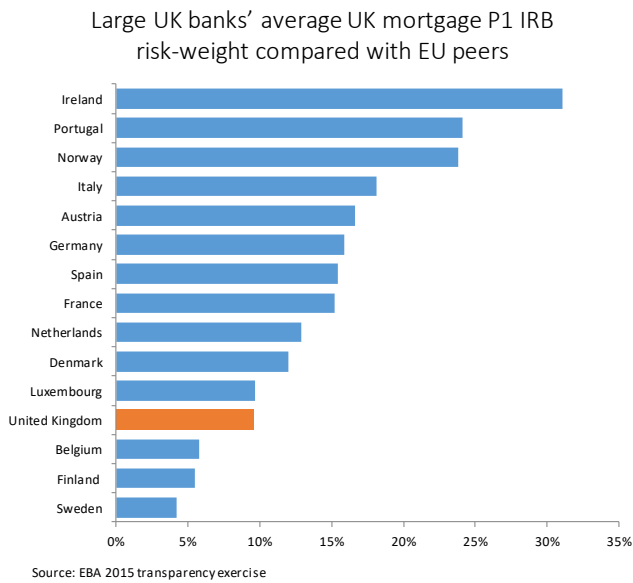
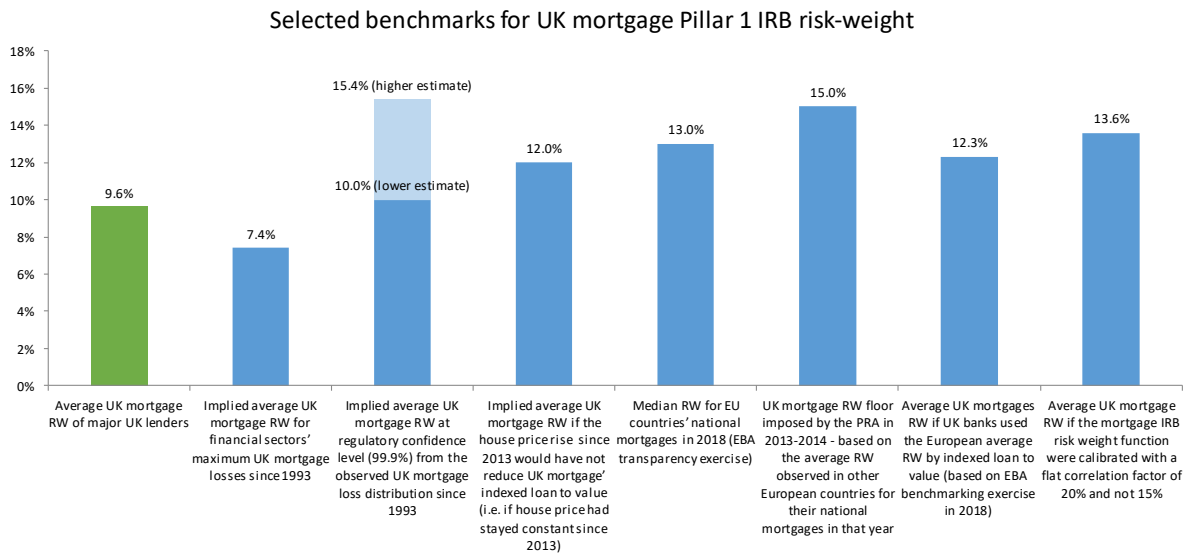
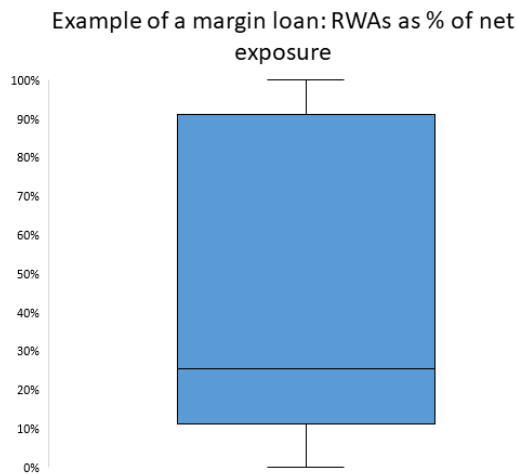


Chart 7: The average mortgage risk-weight in the UK is not an outlier when compared to other benchmarks



Source: EBA transparency exercise 2016, EBA benchmarking exercise 2018 (article 78 of the CRD), and Bank of England's calculations.

Chart 8: Capital held against a recent margin loan exposure shows wide dispersion across firms

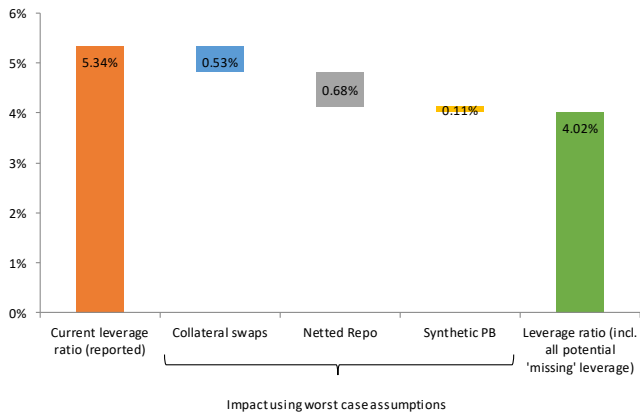


Source: Bank of England

Note: Box and whisker plot of margin loan RWA data. Whiskers denote 0% (the minimum) and 100% (maximum) value. Edges of box denote 25th percentile (RWAs 11% of exposure) and 75th percentile (RWAs 91% of exposure). Horizontal line denotes 50th percentile (RWAs 26% of exposure)

Chart 9: Leverage ratios in 2018 could be lower if we measured activity such as collateral swaps differently

Impact of measuring activity differently on aggregate leverage ratio of sample banks



Source: Bank of England

Note: Banks in sample include large UK banks and large overseas investment firms