

## SECTOR IN-DEPTH

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## Large UK Banks Are More Resilient To a Weakening Commercial Real Estate Sector Than In the Financial Crisis

*We expect the UK Commercial Real Estate (CRE) sector to weaken in the coming quarters following the country's vote to leave the European Union ("Brexit"), which has heightened pressure in the CRE market. Large UK banks have been reducing CRE<sup>1</sup> exposures since 2009, which, coupled with stronger capital buffers, means that they are better able to cope with a deterioration in the sector than during the 2008/09 global financial crisis. However, the increasingly challenging operating environment will place additional pressure on these banks' standalone credit profiles. For individual banks, we expect that a severe deterioration of the CRE sector would lead to moderate erosion of regulatory capitalisation for Barclays plc, HSBC Bank plc and more sizeable declines for Lloyds, Nationwide, Santander UK and RBS.<sup>2</sup> Our assessment of these banks' capitalisation under stress is already reflected in the relevant ratings.*

### Summary

» **After two years of rising transaction volumes, the UK commercial property market is slowing.** In recent quarters, high property valuations and reduced investment opportunities have unnerved investors and led to a large decline in new CRE transactions. These pressures mounted in early 2016 amid uncertainty about the outcome of the Brexit referendum. Since the vote, the collapse of some large CRE deals and the suspension of redemptions at some UK property funds signal an abrupt change in investor sentiment. Our base-case scenario foresees average UK CRE values declining by up to 10%, depending on property type, quality and location. In a hypothetical adverse scenario, we expect significantly greater property price declines. These should, however, remain below the magnitude witnessed during the financial crisis, when they fell by around 45%.<sup>3</sup>

- » **UK monetary financial institutions have cut lending to the UK commercial real estate and construction sectors by around 37% since 2009.** Lending to these sectors was £168.2 billion (8.3% of total lending<sup>4</sup>) at the end of May 2016. UK banks and building societies provided about 46% of total outstanding loans secured by UK commercial properties at the end of 2015, according to a recent sector survey by De Montfort University<sup>5</sup>. The remainder was split among foreign banks (32%) insurance companies (15%) and other non-bank financial institutions (7%).
- » **RBS and Lloyds had the largest exposure to UK commercial real estate of around £25 billion and £20 billion at the end of June 2016, respectively. However, Santander UK had the largest exposure as a proportion of its fully-loaded Basel III<sup>6</sup> Tier 1 capital at 94%<sup>7</sup>.** The size, make-up and quality of large UK banks' CRE loan portfolios vary by firm, reflecting different business mixes and their historical positioning in the CRE market. These exposures make up only a limited proportion of banks' loan books but are sizeable in absolute terms and when compared to their regulatory capital.
- » **A severe stress would erode Tier 1 capital ratios, in some cases materially.** We estimate that large UK banks' Tier 1 capital ratios would reduce on average by 113 basis points (bps) under our severe two-year stress scenario, with marked differences across the peer group. We envisage a drop in RBS's Tier 1 capital of 173 bps, 141 bps for Santander UK, 136 bps for Lloyds, 113 bps for Nationwide, 71 bps for HSBC Bank<sup>8</sup>, and 40 bps for Barclays. We believe that these institutions can partly offset these credit losses through profits and other management actions. In addition, we believe that large UK banks are better placed to weather a deterioration in their CRE loan portfolios than during the financial crisis, when they reported very substantial losses. We estimate their collective UK CRE exposures have reduced by around 40% since 2010 to £84.6 billion<sup>9</sup> and leverage in the CRE sector has largely declined. Higher regulatory scrutiny has led to tighter underwriting standards and banks' risk appetite has reduced for exposures to the more speculative CRE subsectors, lowering risk.

#### After two years of strong activity, the UK commercial property market is slowing

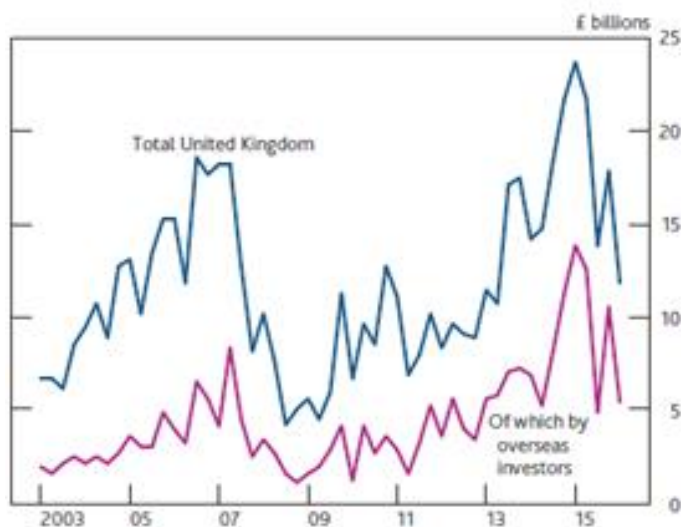
Early signs of slowdown in the UK CRE market started to emerge last year, magnified by slowing global economic growth and fears of overpricing, which reflected in lower transaction volumes (Exhibit 1).

Pressures on the sector rose after the date of the UK's EU referendum was announced early this year. Since 2009, foreign investors have accounted for over 45% of total UK CRE transactions, according to Bank of England (BoE) estimates. Recent BoE data show that inflows of foreign capital into the sector have more than halved this year, suggesting market sensitivity to the referendum announcement (Exhibit 1). Although a weaker sterling could make this type of investment more appealing to foreign investors, we believe that the Brexit vote is likely to exacerbate the negative sentiment that developed in the first half of the year.

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Exhibit 1

### CRE Transactions Have Fallen Significantly Since the Beginning of 2016 UK CRE transactions (gross quarterly flows)



Source: The Bank of England's Financial Stability Report, July 2016.

The collapse of a number of large CRE deals,<sup>10</sup> and the suspension of redemptions on certain open-ended UK property funds by asset managers including Columbia Threadneedle Investments (unrated), Aviva Investors (unrated), Standard Life Investments (unrated), Henderson Global Investors (unrated) and Aberdeen Asset Management (unrated) in recent weeks, provide some support for our view. Property funds were suspended from trading because investor requests for withdrawals were too large to be met by the underlying assets, due to their inherent illiquidity. Although trading has been restored at some of these funds, the suspensions underscore a sharp change in sentiment. Share price volatility of companies exposed to the UK property sector provide a further indication.<sup>11</sup>

Some UK CRE funds, including Aberdeen, Henderson, Standard Life and L&G commercial RE, have begun to market and sell some of their property investments to meet demand for investor redemptions. These include retail and office units in prime central London locations. Sales will lead to downward pressure on prices in the coming quarters (while the UK and the EU negotiate the terms of their separation).

In our base-case scenario, we expect a new UK-EU trade arrangement, and for UK GDP growth<sup>12</sup> to slow to 1.8% over the long run, but not to enter recession.<sup>13</sup> We further expect average UK CRE prices to drop by up to 10%, depending on property type, quality and location.

In a hypothetical stressed scenario, where we assume the UK economy is in recession, we would expect significantly greater property value declines. Nevertheless, these are unlikely to be of the magnitude witnessed during the global financial crisis, when property values as a whole fell by around 45%. This is because current CRE and lending market fundamentals are stronger than in 2007. An economic recession, nonetheless, would lower investor demand, leading to higher risk premiums, reduced tenant demand and lower rental levels.

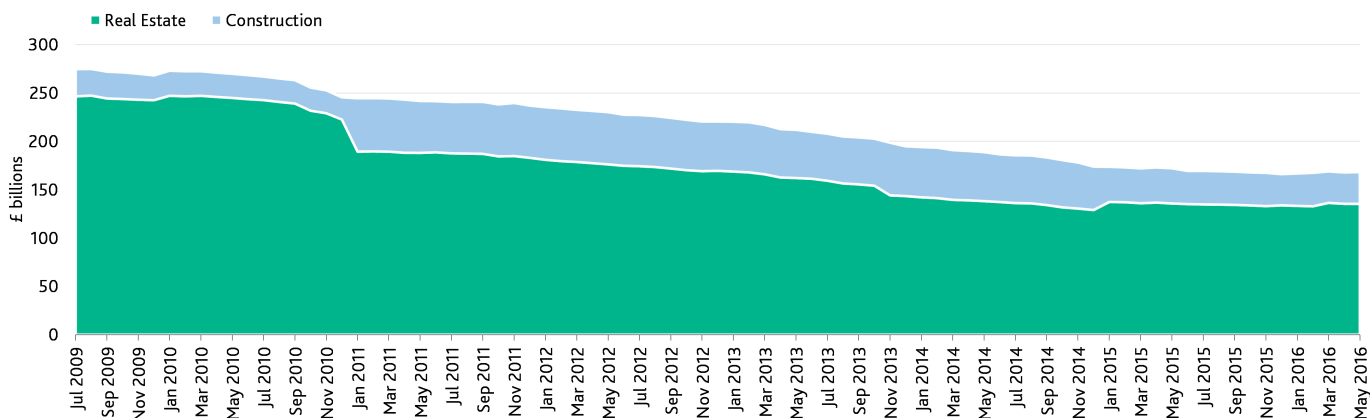
#### UK monetary financial institutions have cut lending to the UK commercial real estate and construction sectors by more than a third since 2009

Total lending by financial monetary institutions<sup>14</sup> to the UK real estate and construction sectors totalled £168.2 billion at the end of May 2016, down from £274.8 billion at the end of July 2009, BoE statistics show. These sectors now correspond to 8.3% of their total lending. The portfolios have been steadily declining since 2009 and only started to stabilise over the last 18 months (Exhibit 2).

Exhibit 2

**Lending To The UK CRE and Construction Sector Has Been Declining Since 2009**

Breakdown of financial institutions' lending to UK residents



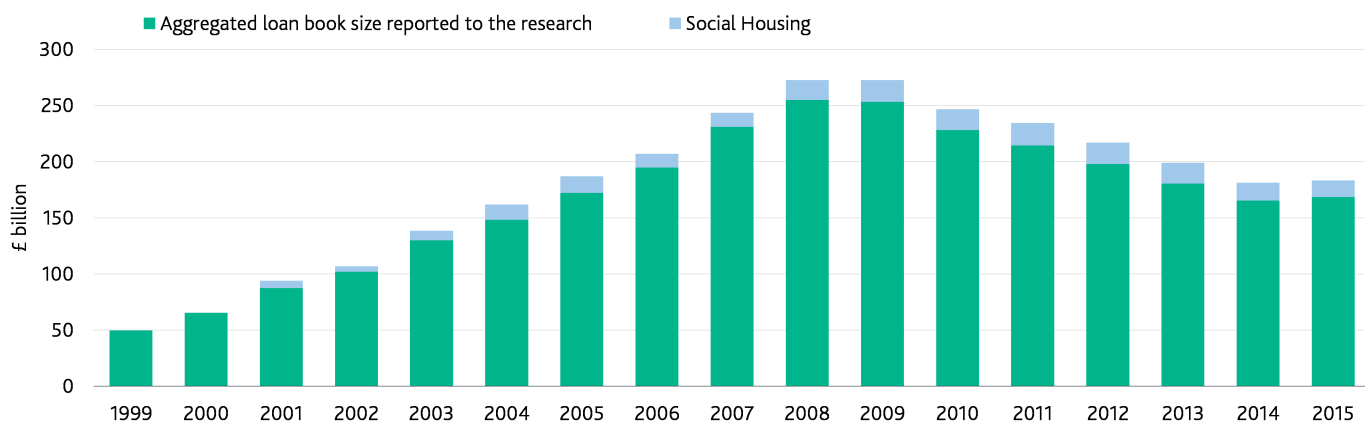
Source: Bank of England.

There is little data on lending to the UK CRE sector provided by other (non-monetary) financial intermediaries. However, a recent survey by De Montfort University<sup>15</sup> shows that the amount of outstanding loans secured by UK commercial properties was £168.4 billion at the end of 2015, up just 2% from 2014 (Exhibit 3). This points to some stabilisation of the CRE market.

Exhibit 3

**The Stock of CRE Loans Has Stabilised Since 2014**

Net aggregate value of commercial property loan books



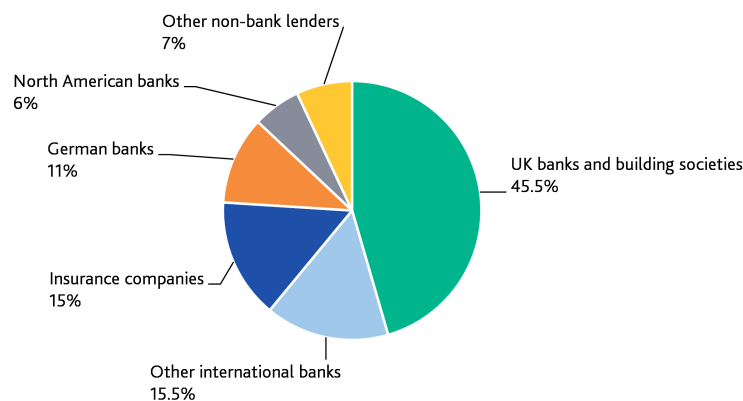
Source: De Montfort Commercial Property Lending Report, May 2016.

The survey indicates that UK banks and building societies held around 46% of the CRE loan stock at the end of 2015, with the remainder spread among foreign banks (32%), insurance companies (15%) and other non-bank lenders (7%) (Exhibit 4).

Exhibit 4

**UK CRE Exposures Are Spread Across A Number of Domestic And International Firms**

Drawn funding by firm type (excluding social housing), as at end-2015



Source: De Montfort Commercial Property Lending Report, May 2016.

CRE loan portfolios are, by nature, diversified as they straddle a plethora of different market segments (i.e. retail, office, industrial, development, social housing, land, etc.), and extend across regions with varying economic fundamentals. As such, CRE loans present different risk-reward profiles for each lender and the sensitivity of lenders to stress conditions diverges. However, these differences and relevant credit losses under stress cannot be reliably estimated ex-ante, given the limited financial disclosures available.

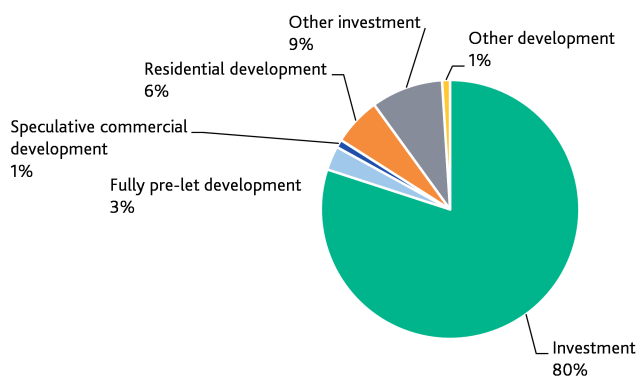
The De Montfort survey shows that, out of an aggregate loan book of £171.8 billion<sup>16</sup> (including social housing), around 80% was secured by investment properties, at the end of 2015 (Exhibit 5). The survey does not provide a breakdown of what is included in this very broad subsector, but we can assume that it contains a range of assets with widely varying risk profiles.

Around 43% of the CRE loans were for properties in central London (Exhibit 6). Since the area houses a large portion of UK economic activity, we can assume lower sensitivity to a change in economic sentiment, compared to other regions of the UK.

Exhibit 5

**The Bulk of CRE Loans in the UK Relate to Investment Properties**

Proportion of total outstanding loan book by type of project, as at end-2015.



Source: De Montfort Commercial Property Lending Report, May 2016.

Exhibit 6

**...And Over 40% Are in Central London**

Regional distribution of outstanding CRE loans, as at end-2015

Central London	Midland & Wales	Scotland	North	South East	East Anglia, South West, Northern Ireland and Channel Islands*
43%	11%	5%	12.5%	14%	14.5%

Note: (\*) including portfolios and 'other'.

Source: De Montfort Commercial Property Lending Report, May 2016.

CRE loans typically have maturities of up to five years and have limited or no capital amortisation (i.e. are interest only). Even for loans with longer maturities, banks tend to preserve the flexibility to renegotiate the terms and/or exit the loans within five years. In a market downturn, maturing loans are likely to be refinanced based on lower property valuations, which, depending on the historical loan-to-value (LTV), may require the investor to increase their equity contributions. Anecdotal evidence suggests that during the 2008/09 financial crisis, a large portion of CRE loans were restructured. However, when borrowers are unable to provide the required additional equity and the lenders are unwilling to refinance or restructure the loans, the lenders may ultimately need to sell the underlying properties, which may result in the crystallisation of credit losses.

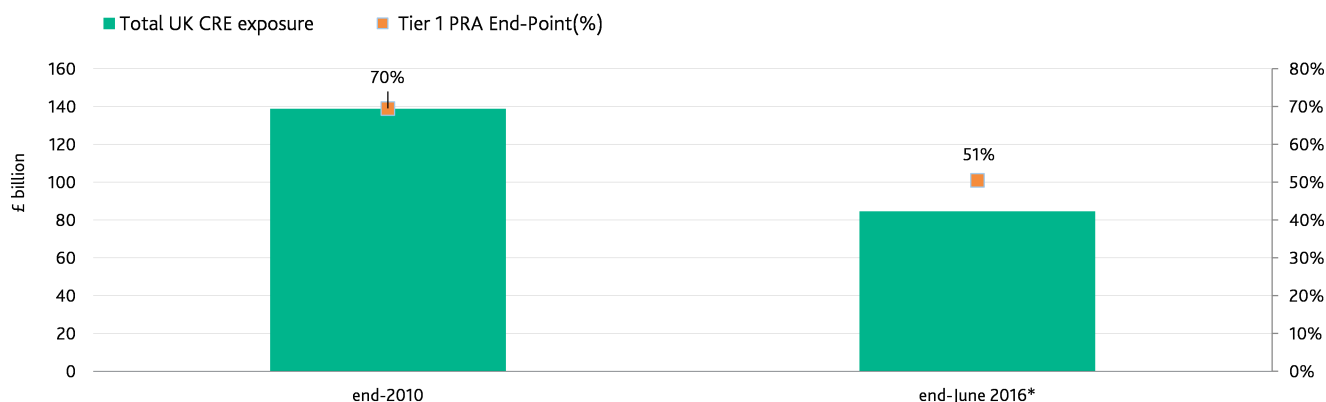
### UK CRE exposures at large UK banks vary in size, make-up and quality reflecting different business mixes and their historical positioning in the CRE market

We estimate that the six largest UK banks have reduced by around 40% their aggregate gross UK CRE lending exposure to £84.6 billion at end-June 2016 from £138.9 billion<sup>17</sup> at the end of 2010, corresponding to 51% and 70% of their Tier 1 capital at the time (2010: Basel II, 2016: PRA end-point Basel III)(Exhibit 7). The reduction in overall exposure and increased quality and quantity of capital in the years following the financial crisis have made these firms more resilient to a new deterioration of the CRE sector. In addition, in its last Financial Stability Report, the BoE quoted Laxfield Capital as indicating that in 2015 the portion of CRE loan requests with LTVs greater than or equal to 65% rose to 47% from 33% in the prior year. The higher proportion of CRE transactions financed through debt indicates an increase in leverage, nevertheless the BoE believes it remains around a third lower than pre-crisis levels.

Exhibit 7

**Banks Have Reduced Their UK CRE Loan Stocks By Around 40% Since 2010**

Large UK banks: Stock of UK CRE loans (left Y-axis) and proportion of fully loaded Tier 1 capital (% , right Y-axis)



Note: Tier 1 capital amounts for the two periods are not perfectly comparable due to changes in capital rules (end-2010: Basel 2, end-June 2016: PRA end-point Basel III). PRA denotes the UK regulator Prudential Regulatory Authority. End-June 2016 Tier 1 capital ratios, except Nationwide Building Society which is full year as at 4 April 2016 and Santander UK which is end-March 2016. (\*) Denotes includes Moody's estimate, see Appendix for further details.

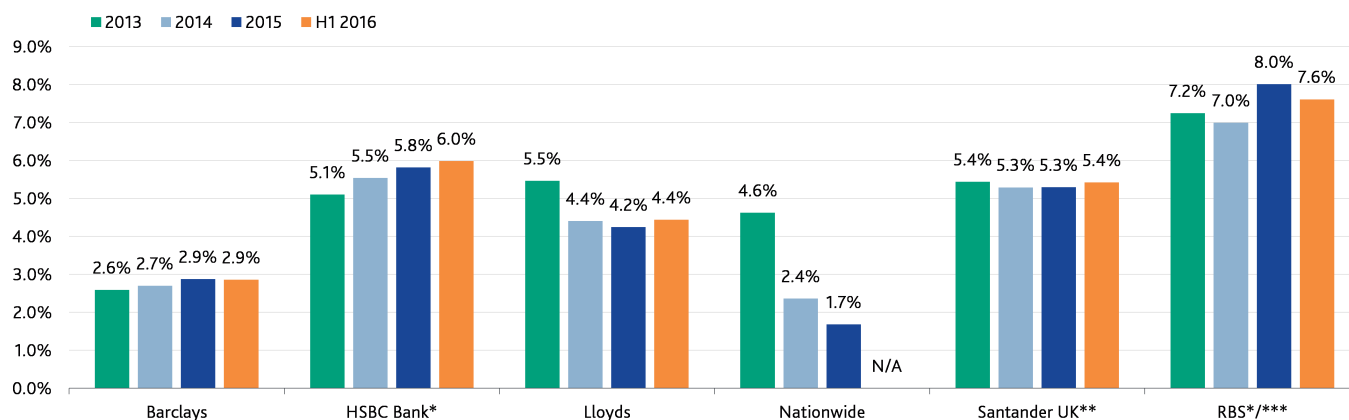
Source: Company reports, Moody's estimates.

We estimate the gross CRE loan books of the six largest UK banks formed 4.7% of their total loans in aggregate at end-June 2016 (unchanged from end-2015). However, the absolute size and relative significance of the UK CRE portfolios vary materially from firm to firm (Exhibit 8).

Exhibit 8

**UK CRE Exposures For Large UK Banks Vary Considerably**

Gross UK CRE loan portfolios and % of respective gross loan books



Notes: All figures are reported as at financial year-end 31 December except for Nationwide Building Society, whose financial year-end is 4 April. (\*) End-June 2016 reflects Moody's estimate, see Appendix for further details (\*\*) Santander UK reflects committed exposures (e.g. end-June 2015: £10.9 billion) in place of CRE lending (end-June 2015 £9.4 billion) as historical data for CRE lending is not available prior to 2014. (\*\*\*) 2013 figure for RBS excludes CRE exposure in Northern Ireland.

Source: Company reports, Moody's estimates.

Within this peer group, RBS had the largest gross exposure at the end of June 2016, both in absolute terms (estimated £25.3 billion) and as a proportion of its gross loan book (7.6%). Lloyds follows with £20.3 billion and 4.4%, respectively, with HSBC Bank at £12.8 billion and 6.0%. The exposure of these three banks alone accounts for around 70% of the group total. We note that around 10% of RBS's CRE loans are included within its Capital Resolution legacy asset portfolio, which management intends to wind down as part of its restructuring. Lloyds' CRE loans included in its legacy Run-Off portfolio represented a smaller 4% of its total CRE exposure, as at the same reporting date.

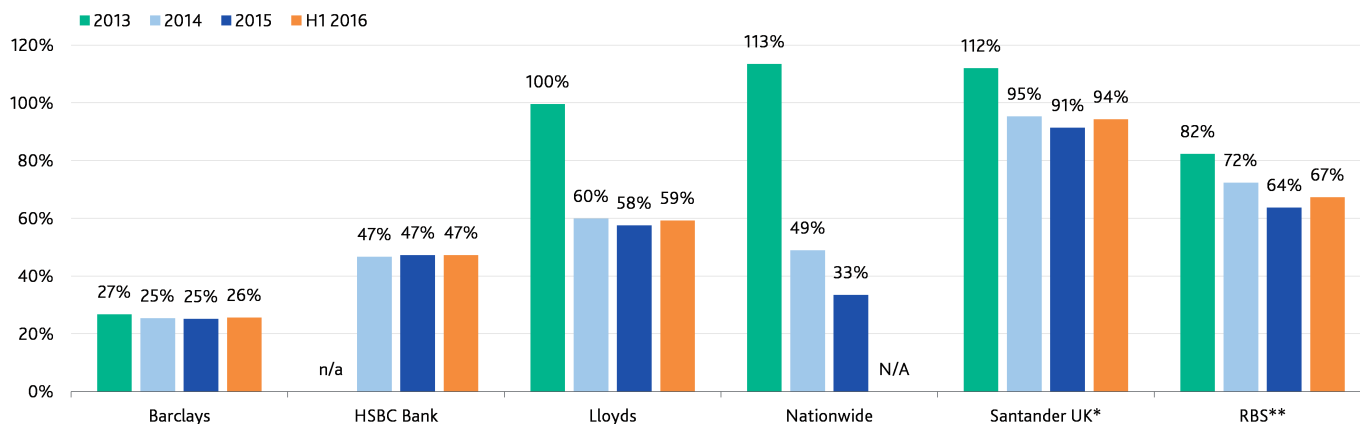
The CRE loan books at Barclays and HSBC Bank are of similar size, at £12.3 billion and £12.8 billion<sup>18</sup>, respectively. CRE exposure at HSBC Bank represented a larger proportion of its gross loans (estimated 6.0%<sup>19</sup>) compared to Barclays (2.9%). Santander UK's CRE loan portfolio was £10.9 billion, or 5.4% of its total loan portfolio. Nationwide had the smallest CRE portfolio at £3.0 billion, reflecting the firm's deleveraging of this type of exposure since 2009, which gave rise to large impairment charges (Nationwide's CRE loan book totalled £11.6 billion at the end of 2012, after CRE asset acquisitions from third parties). CRE loans made up just 1.7% of its gross loans at the end of its latest fiscal year in April 2016.

CRE exposure as a proportion of fully loaded Tier 1 capital has also declined in recent years for these banks (Exhibit 9).

Exhibit 9

**UK CRE Lending as a Proportion of Capital Has Declined in Recent Years**

Large UK banks: UK CRE loan portfolios as a % of PRA end-point Tier 1 capital



Nationwide Building Society at financial year-end is 4 April. PRA denotes the UK regulator Prudential Regulatory Authority. (\*) Santander UK reflects committed exposures (e.g. end-June 2015: £10.9 billion) in place of CRE lending (end-June 2015 £9.4 billion) as historical data for CRE lending is not available prior to 2014. (\*\*) 2013 figure for RBS excludes CRE exposure in Northern Ireland. End-June 2016 includes Moody's estimate, see Appendix for further details.

Source: Company reports, Moody's estimates.

Santander UK had the highest gross CRE exposure relative to its Tier 1 capital at end-June 2016<sup>20</sup>, at 94% compared to around 67% for RBS, 59% for Lloyds and just 26% for Barclays. However, we expect the relative size of RBS's CRE exposure to increase over the next 12 to 18 months despite an ongoing reduction in the legacy CRE loans, as the settlement of large pending litigations will reduce its regulatory capital.

Public disclosure of the detail of banks' CRE portfolios varies considerably, limiting a comparative analysis of their credit quality (Exhibit 10). Based on banks' disclosures, around 85% to 95% of the banks' UK CRE lending has an LTV of 75% or below. We expect LTVs to increase in the coming quarters as property valuations will likely decline. In addition, market data from Laxfield Capital quoted by the BoE suggest that LTVs on new CRE transactions have increased since 2014.

Exhibit 10

**Large UK banks: summary of UK CRE exposures**

Bank	Exposure	Loan-to-value	Comments
Barclays	£12.3 billion	Excluding unassessed balances of £2.15 billion and unsecured (primarily working capital) balances of £1.1 billion, 96% of exposures with LTVs <=75%, 1% of exposures with LTVs >=100%	For the total exposure of £12,292m, collateral of £26,442m is held. Less than 2% of stock lending to development
HSBC Bank	£12.8 billion	N/A	N/A
Lloyds	£20.3 billion (75% commercial and 25% residential)	Excluding £0.9 billion run-off book and £0.5 billion CRE lending booked in Wealth, more than 85% of >£5 million exposures have an LTV <= 70%	£0.9 billion of lending in Run-off Book at end-June 2016 (£1.1 billion end-2015). Circa 10% of stock lending is to development
Nationwide	£3.0 billion	92% of exposures with LTVs <=75%, 4.4% of exposures with LTVs >=100%	96% of stock is fully collateralised
Santander UK	£9.4 billion (£10.9 billion including committed exposures)	Excluding standardised portfolio of £1.0 billion and development lending of £0.5 billion, 97% of exposures with LTVs <=70%, 1% of exposures with LTVs >=100%	NPL coverage 33% of the total CRE portfolio. Largest three sectors (stock lending, end-June 2016): 26% Office, 20% Retail, 13% Industrial. 5% of stock lending is to development. No new business written in 2015 or H1 2016 with >=70% LTV
RBS	£24.6bn Net (£25.3 billion estimated gross)	Excluding net development lending of £3.8 billion and £2.5 billion of other net lending, 89% of net exposures with LTVs <=70%, 3.5% of net exposures with LTVs >=100%	16% of stock net lending is to development. REIL is 9.0% of CRE gross lending* as a percentage of gross loans to customers

Data reflects end-June 2016 apart from Nationwide which is at its fiscal year end in April. (\*)Risk Elements in Lending to Gross Loans for RBS relates to the bank's entire CRE portfolio, including Ireland. RBS Gross CRE exposure at end-June 2016 reflect Moody's estimate, see Appendix for further details.

Source: Company reports, Moody's estimate: RBS gross CRE lending.

Around 5.7% of CRE lending at large UK banks was non-performing at the end of June 2016. RBS and Lloyds had the largest non-performing CRE loan stock of an estimated £1.9 billion and £1.4 billion, respectively, corresponding to around 7.6% and 7.0% of their total CRE portfolios. However, we believe that these loans were mostly originated some years ago and have been part of the groups' restructuring. As such, they are likely to be adequately provisioned and less vulnerable to a downturn. Non-performing loans (NPLs) at Nationwide and HSBC Bank accounted for 7.5% and estimated 6.6% of their portfolios, respectively (Exhibit 11).

We consider that the overall performance of these portfolios and relative provisioning levels are adequate; however, we expect a deterioration of the CRE sector in the coming quarters to lead to increased delinquencies.

Exhibit 11

**RBS And Lloyds Had The Largest Stock Of UK CRE Non-Performing Loans At End-June 2016****Large UK banks: breakdown of UK CRE exposures**

In GBP billions	Performing	Non-performing	% Non-performing
Barclays	12.1	0.2	1.4%
HSBC Bank*	11.9	0.8	6.6%
Lloyds*	18.9	1.4	7.0%
Nationwide	2.8	0.2	7.5%
Santander UK**	10.7	0.2	2.0%
RBS*	23.4	1.9	7.6%
<b>Total</b>	<b>79.8</b>	<b>4.8</b>	
<b>Average</b>			<b>5.7%</b>

(\*) Includes Moody's estimate for HSBC Bank, Lloyds and RBS at end-June 2016, see Appendix for further details (\*\*) Santander UK reflects committed exposures (£10.9 billion) in place of gross lending (£9.4 billion) as historical data is not available prior to 2014.

Source: Company reports, Moody's estimates.

### RBS, Santander UK and Lloyds show greatest vulnerability in a stressed scenario

The large UK banks experienced a stark deterioration in their CRE loan portfolios during the 2008/09 financial crisis, which led them to cut back their exposure to the sector. Improved credit conditions in the UK over the last few years have gradually benefited the overall quality of the remaining portfolios.

Our stress test of large UK banks' CRE exposures, which assumes unchanged banks' balance sheets, shows that the impact on their regulatory capital varies (Exhibit 12). We have applied bank-specific probability of defaults (PDs) to each portfolio over a two year period, based on existing differences in non-performing loan ratios across banks in line with our stress testing approach.<sup>21</sup> A common Loss Given Default (LGD) of 30% was assumed. As a reference point, our 30% LGD assumption is lower than the average LGD of around 35% seen in defaulted loans of Commercial Mortgage Backed (CMB) transactions rated by Moody's during the pre-financial crisis period 2004/07.

Due to data constraints, we apply these assumptions to the net exposures (i.e. deducting CRE related loan loss reserves from gross exposures) and do not take into account potential mitigants such as management actions and pre-provision earnings, which could reduce these credit losses. For the same reason, we do not consider differences in distribution by geography or sub-sector, which could result in diversification benefits to the banks' CRE portfolios, reducing expected losses.

Exhibit 12

#### Large UK banks: severe stress assumptions and outcome

£ billions	Barclays	HSBC Bank*	Lloyds*	Nationwide	Santander UK**	RBS*
CRE exposures	12.3	12.8	20.3	3.0	10.9	25.3
Stressed PDs year 1	19.4%	22.3%	24.8%	21.3%	18.0%	27.4%
Stressed PDs year 2	22.3%	25.7%	28.5%	24.4%	20.8%	31.3%
CRE losses	1.5	1.7	3.0	0.4	1.2	4.1
Loan loss reserves (LLRs)	0.1	0.3	0.6	0.1	0.1	0.7

(\*) Includes Moody's estimate for some underlying data inputs for HSBC Bank, Lloyds and RBS at end-June 2016, see Appendix for further details (\*\*) Santander UK reflects committed exposures (£10.9 billion) in place of gross lending (£9.4 billion) as historical data is not available prior to 2014.

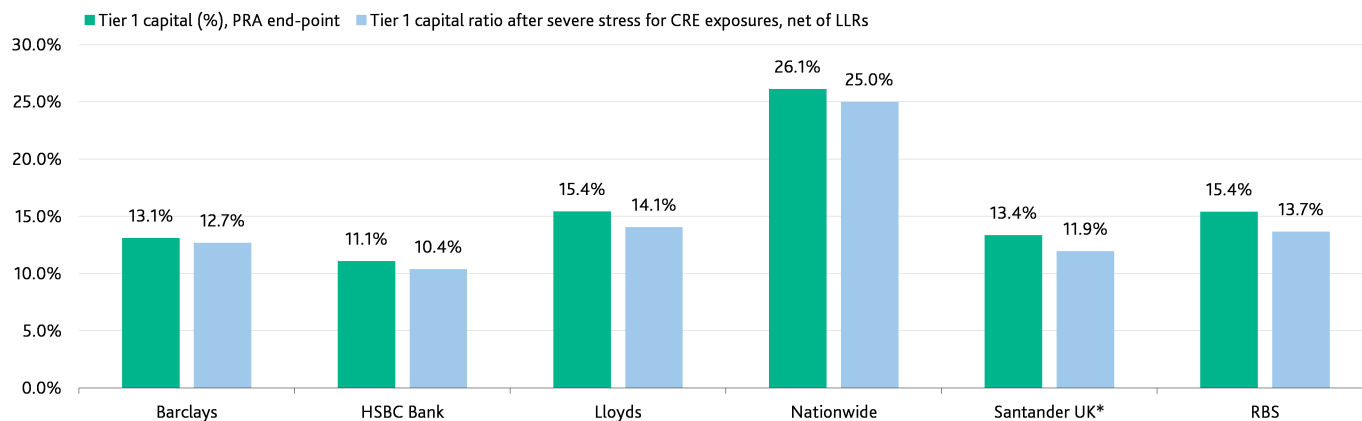
Source: Company reports, Moody's estimates.

Exhibit 13 compares the last reported (Basel III fully-loaded) and stressed Tier 1 capital ratios for each bank. The average drop in Tier 1 capital ratios for the peer group is of 113 basis points. The reduction in regulatory capital under stress is modest for Barclays (-40 bps) and HSBC Bank (-71 bps). It is more sizeable for Lloyds (-136 bps), Santander UK (-141 bps) and RBS (-173 bps), indicating that these firms are more vulnerable to a severe downturn of the CRE sector. The drop in Tier 1 capital ratio under stress for Nationwide (-113 bps), albeit material, would have more limited impact on this firm's regulatory capitalisation, which is higher-than-peers.

Exhibit 13

#### Impact On Capital Ratios Under Our Stress Scenario Vary Across Large UK Banks

##### Large UK banks: End-point PRA Basel III Tier 1 capital ratios at end-June 2016 versus Tier 1 capital ratios under stressed



Tier 1 capital ratios at end-June 2016 for all banks except for Nationwide, which is as of 4 April 2016, and for Santander UK which is end-March 2016. PRA denotes the UK regulator Prudential Regulatory Authority. (\*) Santander UK reflects committed exposures in place of gross CRE lending.

Source: Company reports, Moody's estimates.

Our assessment of these firms' capitalisation forms part of our rating analysis. The ratings for these banks already take into account the credit losses under a severe scenario as well credible management actions, which we expect could reduce these losses.

**LARGE UK BANKS ARE BETTER PLACED TO WEATHER A DETERIORATION OF THEIR CRE LOAN PORTFOLIOS THAN THEY WERE DURING THE FINANCIAL CRISIS**

While we consider that large UK banks are better placed to withstand a deterioration in the quality of their CRE portfolios than during the 2008/09 global financial crisis, we believe that further stresses will place some negative pressure on these banks' standalone credit profiles. An increase in loan losses would weigh on their profits, which are already under strain due to a prolonged period of low interest rates and the prospects for lower business volumes post the UK referendum.

Our stress test results in meaningful losses totalling £12.0 billion, which accounted for 14% of the six banks' gross CRE exposures, at the end of June 2016.<sup>22</sup> However, we consider that such losses do not approach the magnitude seen during the financial crisis because: (1) banks have reduced by around 40% their UK CRE loan portfolios since 2010; (2) the expected loss assumptions that we have used in our severe stress scenario are milder than the actual stress experienced during the financial crisis, based on our expectations; (3) banks have higher loan loss provisioning against their CRE portfolios than was the case in the past and (4) the reduction in leverage in the sector which BoE has highlighted is around a third lower than pre-crisis levels.

As a reference point, during the period 2008 to 2010, total credit provisions for UK monetary financial institutions totalled around £105 billion for the period 2008 to 2010,<sup>23</sup> a large portion of which related to CRE lending, both in the UK and overseas.

We have observed that these banks have reduced their risk appetite for CRE loans, which, in our view, should help to mitigate the downside risks from these exposures, as the operating environment weakens. The UK regulatory authorities have been expressing concerns over exposures to this sector, which we believe have pushed them to improve underwriting standards and their ability to monitor risks stemming from this type of exposures.

## Appendix

Our analysis of large UK banks' UK CRE lending exposures as at the end of June 2016, related loans loss reserves and split into performing and nonperforming loans, is based on a number of assumptions for three banks due to lack of public disclosure. The assumptions we have made are as follows:

- » RBS: Gross UK CRE lending and gross UK CRE non-performing loans are estimated using the following assumptions: (i) the share of Risk Elements in Lending in UK Commercial Real Estate is the same proportion of UK Property and Construction Lending at end-June 2016 as at end-2015 (91%), (ii) the share of Loan Loss Reverses for UK Commercial Real Estate is the same proportion of UK Property and Construction Lending at end-June 2016 as at end-2015 (86%) and (iii) gross CRE lending at end-June 2016 is estimated as disclosed net UK CRE lending of £24.6 billion plus the provisions estimated through assumption (ii), £731 million.
- » HSBC Bank plc: For HSBC Bank unconsolidated (the UK element of HSBC Bank plc, approximately 79% of HSBC Bank consolidated overall gross lending and 69% of gross CRE lending at end-2015, respectively): (i) the split of non-performing and performing CRE lending at end-June 2016 is estimated using the proportion at end-2015 for HSBC Bank consolidated (93.4% performing, 6.6% nonperforming). HSBC Bank consolidated includes lending to France, Germany, Turkey, Malta and other European countries. The disclosed figure of \$17bn of UK CRE lending at end-June 2016 is converted using an exchange rate of 0.7513 GBP/USD (source: Bloomberg) and (ii) Loan Loss Reserves are estimated using the proportion of CRE lending at HSBC Bank plc unconsolidated to HSBC Bank plc consolidated at end-2015 (68.6%).
- » Lloyds: (i) assume all of CRE lending in Wealth of £0.5 billion is performing, (ii) the UK portion of the Run-off group has the same proportion of impaired and unimpaired loans at end-June 2016 as overall Run-off group for the the Corporate real estate and other corporate subsegment (82% end-June 2016), (iii) the split of impaired loans in the Commercial Banking element of UK Direct Real Estate is the same at end-June 2016 as at end-2015 (29%), (iv) Loan Loss Reserves for the UK CRE element within the Commercial Banking segment is estimated assuming the proportion is the same as the proportion of UK Direct Real Estate impaired loans within the Commercial Banking segment to the wider Commercial Banking impaired loans as at end-2015 (29%) and (v) Loan Loss Reserves for the UK CRE element of the Run-off book assumed same proportion of impaired loans coverage as end-June 2016 for the wider Run-off book (53% end-June 2016).

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- » [London property deals worth more than £650m collapse after Brexit](#)
- » [De Montfort Commercial Property Lending Report: The UK Market Research Findings 2015 Year-End](#)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

## Endnotes

- 1 Commercial real estate lending figures in this report reflect banks' definitions in their financials, which is different across firms. For example, figures for Lloyds exclude social housing and housebuilder lending. This report focuses on CRE lending inside the UK, not CRE lending outside of the UK. As a reference, we calculate the six large UK banks had £82.6 billion of gross CRE lending outside of the UK (37.3% of their gross CRE lending) at end-2010. This aggregate calculation for HSBC reflects HSBC Bank plc unconsolidated and for Santander does not include the UK legacy run-off portfolio of £5.2 billion at end-2010 due to lack of disclosure on the CRE element.
- 2 Barclays: holding company Barclays plc (Baa3 negative) and operating company Barclays Bank plc (A2 negative/A2 negative, baa2), HSBC Bank: HSBC Bank plc (Aa2 negative/Aa2 negative, a3), Lloyds: holding company Lloyds Banking Group plc (Baa1 stable) and operating company Lloyds Bank plc (A1 stable/A1 stable, baa1), Nationwide: Nationwide Building Society (Aa3 negative/Aa3 negative, a3), Santander: Santander UK plc (Aa3 negative/A1 stable, a3), RBS: holding company The Royal Bank of Scotland Group plc (Ba1 positive) and operating company The Royal Bank of Scotland plc (A3 positive/A3 positive, ba1).
- 3 Please see our Sector Comment report '[Brexit Vote is Credit Negative for the UK's Commercial Real Estate Market](#)', published on 3 August 2016.
- 4 Bank of England's data on Industrial analysis of domestic monetary financial institutions' lending to UK residents.
- 5 Please see 'De Montfort Commercial Property Lending Report: The UK Market Research Findings 2015 Year-End', published in May 2016.
- 6 UK Prudential Regulatory Authority (PRA) prescribed end-point basis.
- 7 Exposures at end-June 2016, Tier 1 capital at end-March 2016 (latest available disclosure). Exposure reflect committed exposures of £10.9 billion instead of lending (£9.4 billion) at end-June 2016.
- 8 Stress for HSBC Bank is applied relative to HSBC Bank plc consolidated regulatory capital.
- 9 Includes estimate for RBS gross UK CRE lending at end-June 2016 (see Appendix). HSBC Bank reflects HSBC Bank plc unconsolidated.
- 10 Please see Financial Times article 'London property deals worth more than £650m collapse after Brexit', published on 1 July 2016.
- 11 Please see our report '[UK Property Funds Suspend Redemptions, a Credit Negative for Asset Managers and Insurers](#)', published on 11 July 2016.
- 12 Real GDP growth.
- 13 Please see our report '[Global Macro Outlook Update: EU Political Contagion Represents the Greatest Risk to Otherwise Muted Global Impact from Brexit](#)', published on 8 July 2016.
- 14 Bank of England's definition, broadly comprising: (1) UK deposit-takers excluding credit unions, insurance firms and friendly societies, (2) deposit-taking branches of European Economic Area (EEA) credit institutions.
- 15 Please see 'De Montfort Commercial Property Lending Report: The UK Market Research Findings 2015 Year-End', published in May 2016. The survey includes responses from a total of 83 lending teams operating out of 80 lending organisations (49 banks and building societies, 11 insurance companies and 20 other non-bank lenders).
- 16 Lending by banks, building societies and insurance companies.
- 17 2010 data excludes Santander UK's legacy CRE exposures in the £5.2 billion UK run-off as the breakdown is not available. Calculation for HSBC, within this aggregate calculation, is based on HSBC Bank plc unconsolidated.
- 18 For HSBC, the disclosed figure of \$17bn of UK CRE lending at end-June 2016 is converted using an exchange rate of 0.7513 GBP/USD (source: Bloomberg).
- 19 See Appendix for further details.
- 20 Santander UK Tier 1 capital is at end-March 2016 (end-June 2016 figure not yet available) and exposures at end-June 2016.
- 21 Stressed probabilities of default used in this note were derived using a multiplier approach (see [Modeling System-Wide Trends In Banks' Asset Quality](#) and [Expected and unexpected bank losses: revisiting the Basel approach for a reference](#)). PDs for individual banks were based on existing differences in non-performing loan ratios across banks. The weighted-average (6 largest banks) stressed PD for commercial real estate estimated for 2016 is 23.45%, whereas for 2017 is 26.92%. Along with a LGD of 30%, this leads to expected loss rate of 7.04% in 2016 and 8.08% in 2017.
- 22 Nationwide as at April 2016 fiscal year end.
- 23 Source: Bank of England Banking Statistics B3.2: Monetary financial institutions' annual profit and loss.

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