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Changing Sources of Real Estate Debt Capital: Facts and Implications

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FULL REPORT

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Changing Sources of Real Estate Debt Capital: Facts and Implications

Report

IPF Research Programme 2015–2018

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EXECUTIVE SUMMARY

Commercial real estate (CRE) investors have traditionally used debt to enhance their equity returns and increase the size and diversity of their portfolios. CRE plays an important role in the overall UK economy, as implied by the c. £870 billion market value, representing some 10% of national wealth as at the end of 2015[1]. During the Global Financial Crisis (GFC) of 2008–2009, however, declining CRE values resulted in large debt and equity losses, as property value declines triggered loan defaults and collateral enforcements.

Since the GFC, the UK has become the most diversely sourced CRE lending market in Europe. This is evidenced by insurers and other non-bank lenders originating 25% of all 2015 CRE loans and a further 15% through bond issuance. With a quarter of all UK CRE loans being syndicated, originating banks are reducing their CRE loan exposures by selling down to other banks and non-bank lenders. Evidence collected from individual interviews suggests that syndication has increased the combined insurer and debt fund share of annual loan origination from 25% to 35%. Despite these structural changes, banks retained a 60% share of 2015 loan originations, with the six largest UK banks still holding a 40% share in new loan originations. The emergence of increased lender diversity supports more stable annual loan origination volumes re-enforcing the consistency of debt capital availability to CRE investors over time.

Regulatory change has been the key driver of greater diversification in the UK CRE lending market. Primarily, new regulations have been triggered to avoid future bank failures, government bailouts and takeovers, such as occurred during the GFC, being partly caused by losses on CRE loan books. One of the key findings of this study is that cumulative CRE loan losses for European banks amounted to between 9.5% and 12.5% of original loan balances, exceeding losses on securitised CRE loans (at c. 3%). Given this performance record, diversification away from banks (as the single dominant CRE lending source) makes sense, especially from a financial market stability perspective. Tighter rules set by central banks and other regulators, forcing banks and other lenders to increase their capital reserves for CRE loans, have improved financial stability. Regulation is the central theme in this analysis of the increase in CRE lender diversification.

CRE investors have benefited from this diversification, as loan margins in the UK have fallen in recent years and are now reported by CBRE to be among the lowest in Europe. However, a wider range around the declining average UK loan margin has also emerged, as different lender types have focused on various margin-risk segments of the lending market. Again, this is tied to new regulations with different CRE lender types impacted differently. Inconsistent implementation of some international rules across countries also remains, with UK banks facing stricter slotting rules than banks elsewhere.

There is a direct impact from regulations on the ability of each lender type to take risk and price loans, based on the researchers' analysis of the slotting, Basel III and IV and Solvency II rules. Regulation and lender business models have changed the segmentation across the risk-return spectrum as well as loan type and size. Regulation directly impacts lenders' loan pricing and risk appetite. The future direction of regulation is not yet clear, but further changes are under discussion.

[1] The Size and Structure of the UK Property Market End-2015 Update, IPF 2016.

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Due to favourable regulatory treatment, German covered bond-funded banks and insurers have been able to offer the lowest margins in the UK market. This is due to the ability of these Pfandbrief-funded banks to apply the advanced internal rating-based (A-IRB) approach under the Bank for International Settlements (or Basel III) rules. A-IRB banks have therefore focused on writing low margin and low risk business, especially as their cover pool (which act as security) eligibility criteria restrict higher LTV loans. However, proposed changes to the Basel rules (IV) might lead to a 80 bp increase – or near doubling – in margins offered by this German lender category. In the case of insurers and insurer-funded senior debt funds, CRE loan pricing is driven by the capital requirements under the Solvency II rules. Insurers are also restricted to lower risk/lower margin loans by Solvency II, leading to both insurers and German banks focusing on the same segment of the CRE lending market.

As a result of the introduction of the new slotting rules in 2013–2014, UK banks have been forced to become more conservative in their CRE lending activities. Data from De Montfort University shows UK bank margins widened after the slotting rules came into force. Pension funds and debt funds are able to pursue a broader range of risk-return strategies in real estate lending. This means they are in a position to also fund higher risk/higher margin loans. From a borrower's perspective, it would be wise to actively diversify amongst lender types as future regulatory changes are likely to impact different lenders more or less severely. Regulatory diversification amongst CRE lenders might be a clever objective for borrowers in future.

Improved resilience in future UK capital value cycles compared to past downturns is expected to be another positive effect from the UK's more diversified lender market. This view is supported by the well-diversified nature of the CRE lending market in the United States (US). Record CRE loan origination levels in 2015 pushed US CRE values 14% above their 2006 previous peak by year-end. In contrast, the less diversified UK CRE lending market in the same year reached only 64% of its previous annual origination record in 2007 and UK capital values were still 11% below their 2007 peak by year-end 2015. The US market data implies, therefore, that greater lender type diversification and transparency strengthen the resilience of both the CRE lending and the underlying property markets. Based on this, the authors expect a better diversified lending market in the UK to support a more robust capital value recovery in future market cycles. Evidence from US markets also suggests that insurers are likely be likely long-term competitors in the UK lending market.

Based on the above, it is the researchers' view that, for the foreseeable future, the UK CRE investment and lending markets will continue to see the benefits of increasing diversification of debt capital sources. These benefits include: (1) greater financial market stability; (2) more competitive loan margins; and (3) improved resilience in CRE capital values through economic cycles.

1. INTRODUCTION

As recent changes in the CRE lending markets have become more evident, this research report provides an in-depth review of these changes and their implications for CRE investors in the UK.

The report is structured as follows:

- Review of existing academic and business literature as a general introduction (Section 2);
- Discussion of the use and potential repercussions of debt in CRE investment (Section 3);
- Historical overview of bank and non-bank CRE debt financing in the UK and elsewhere with a review of the size and relevance of the syndication market (Section 4);
- CRE loan pricing, default and loss trends with a relative value review of CRE Lending (Section 5);
- Estimate of the impact of changing regulation on different CRE lender types (Section 6); and
- Market implications of the source-diversification in UK CRE lending (Section 7).

The focus of the research is solely on CRE debt, excluding social housing and private residential mortgage loans, although residential property held for investment purposes and residential development for sale are included. The analysis covers CRE loans or debt instruments originated and/or held by commercial and investment banks, building societies, insurance companies, pension funds and alternative investment funds.

2. LITERATURE REVIEW

This section comprises a summary review of existing academic, regulatory and business literature, to provide a general introduction to CRE lending in this context.

2.1 Academic Literature

Recent academic literature has mainly concentrated on the analysis of the impact of regulation on CRE lending. Amongst others, Panagopoulos and Prodromos (2009) identified that, over the last 20 years, real estate crises led to banking crises due to real estate lending representing a significant part of individual bank balance sheets and declining property values could have led to bank failures. Corsetti, Pesenti, Roubini and Tille (1998) reported that, immediately prior to the financial crisis in 1997, property exposure within Asian economies had risen to over 30% of total bank loans. For the US, commercial real estate-related loans accounted for 22% of total bank lending in 2005 (Lopez, 2007), whilst in the European Union, at the end of 2007, commercial property-related loans amounted, on average, to 11.6% of total loans in the 17 countries surveyed (ECB, 2008). Many of the credit losses suffered by banks, building societies and insurance companies occured in European countries, such as Sweden, Norway and the UK, that had already experienced crises in their banking systems in the 1970s and the 1990s, caused by excessive portfolio concentrations of loans in the real estate industry. Panagopoulos and Prodromos (2009) highlighted poor regulation within the banking system as a key issue and concluded that banks needed to be stricter in their loan management by applying tight lending standards and implementing various quantitative regulations to ensure prudent lending practices within the real estate sector, such as rules imposing the level of loan-to-value ratios (LTVs).

Brutscher (2015) – comparing recovery processes related to banking and sovereign crises – found, in the case of banking crises, no significant difference in the initial drop in investment between bank-based and market-based regimes. However, recoveries tended to be more sluggish in those countries where bank-based debt sources prevailed, as liquidity shortages and (limited) risk-taking capacity had resulted in a slower speed of recovery. In the case of the sovereign debt crisis, investment appeared to drop more markedly in bank-based than in market-based countries but the speed of recovery was very much the same in both types of system. Other research, undertaken by Hüther et al. (2015) on behalf of the Institut der Deutschen Wirtschaft (IDW), identified that, while long-term fixed interest rates prevail in German and US real estate lending markets, most real estate loans in the United Kingdom are subject to variable interest rates. These differences have had a significant impact on the stability of housing markets within these jurisdictions. Markets dominated by long-term financing have experienced considerably lower price volatility than other markets because interest-rate volatility had a lesser impact on demand. The advantages of long-term financing, in terms of macroeconomic stability, are not being exploited universally as a result of the cost to the banking system, which is largely determined by the regulatory framework.

Another area of literature has concentrated on the relationship between real estate markets and credit cycles. Real estate market cycles often exhibit strong linkages with credit cycles due to the greater reliance of property companies and funds on debt financing compared to other industries. Due to data restrictions, most empirical work on the linkage between real estate prices and bank credit had focussed on the relationship between residential property prices and bank lending. Empirical work for different countries [Goodhart, 1995 (U.K.); Quigley, 1999 (U.S.); de Haas and de Greef, 2000; Rouwendal and Alessie, 2002 (the Netherlands); Gerlach and Peng, 2002 (Hong Kong); and Hofmann, 2001a, 2001b (16 industrial countries)] has shown the existence of a dynamic interaction between residential prices and bank lending. An attempt was also made (Davis and Zhu, 2004) to examine the link in 17 countries between commercial property prices

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and bank lending. The authors showed the direction of the linkage between commercial property cycles and credit cycles to be largely one-way, i.e. commercial property prices affect credit expansion rather than the other way around.

2.2 Regulatory and Business Writings

Research by business analysts of actual loss data (from securitised CRE loans) has shown little evidence that the level of underwritten LTV is a useful measure to estimate potential future losses (Nichol, BAML, 2015 and 2016). A more suitable metric, better correlated with potential loan losses, is that of the debt yield (being net operating income divided by the loan amount), which is used more widely in the US and is not influenced by LTV or interest rate volatility.

Aggregate bank assets in the Eurozone totalled €30.7 trillion as of end 2015, representing around 3.5 times the trading bloc's GDP, and reflecting the important role banks play in the economy (IDW, 2015). Their CRE lending activities are part of alternative asset financing and amount to approximately 5–10% of their total reported assets. This might be understating CRE's importance in bank loan books, as many SME loans may also include a CRE mortgage element. Against the background of this bank-dependence, Allard and Blavey's research (2011) focuses on historic recovery processes that followed crises. They showed that economies with capital market-based financial systems have the ability to recover faster than more bank-based ones.

According to the Financial Stability Board (FSB, 2013) non-banks can have a legitimate role to play in increasing the financing available to borrowers experiencing funding shortages, especially as the maturity of their liabilities constitute a better match for the borrower's maturity needs than banks' liabilities. A greater role for investors that are potentially less leveraged and have longer-term liabilities than banks in financing the economy may positively contribute to financial stability.

The Bank of England also gives its views on CRE, stating commercial property played a key role in the recent financial crisis in the United Kingdom (BoE, 2013). A rapid build-up of debt tied to commercial property investments pre-crisis supported a boom in prices. The consequent bust led to a sharp rise in non-performing loans. More recently, the Bank of England (BoE, 2016) highlighted the importance of commercial property as a financial sector. According to the BoE, any adjustment in CRE markets could potentially be amplified by the behaviour of leveraged investors and investors in open-ended commercial property funds. Any such amplification of market adjustments could affect economic activity by reducing the ability of companies that use CRE as collateral to access finance.

Furthermore, in 2014, Yves Mersch, a member of the European Central Bank's (ECB's) Executive Board, in his speech to the IMN Global ABS Conference 2014, stated that non-bank lending has a role to play and that the transfer of risks outside the banking system can have benefits. As both academic studies and market behaviour have an impact on policymakers, it is useful to highlight the recently launched Capital Markets Union (CMU) initiative. The CMU is a European Commission (EC) plan to mobilise greater amounts of capital across Europe. By integrating capital markets, more capital will be channelled to all companies, including SMEs, and infrastructure projects, to facilitate corporate growth and job creation. In reducing the traditional reliance on bank lending, deeper and more integrated capital markets are expected to lower the cost of funding and make the financial system more resilient.

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Business-focused research, such as the DTZ Research series of reports on the Debt Funding Gap (2010 to 2013), attempts to quantify the size of the debt-related problem for the property market as a whole. During the GFC, many investors and fund managers faced negative equity situations but still needed to understand how much further market deterioration there might be in the near future. The DTZ reports initally considered only the refinancing problem, but subsequent editions expanded to add the growth in non-bank lending and regulation-driven bank deleveraging. Finally, DTZ Research has also highlighted the breakage costs of floating-to-fixed rate swaps in the UK CRE loan context by showing data on the size of out-of-court settlements. Highlighting the size and causes of the problems has been a useful tool to reduce the prospect of similar mistakes occurring in future.

In this respect, the Real Estate Finance Group (2014) has made an important contribution by recommending seven specific actions to improve industry practices, in particularly focusing on increasing market transparency, which is discussed in more detail in Section 6.6.

Summary Section 2

- A variety of analysis of CRE debt has been undertaken by academics, regulators, industry organisations and business researchers, with their focus ranging from long-term systemic property and credit cycle comparisons and reviews of the impact of regulation on CRE lending to more practical implications and statistical default and loss analyses.
- In general, since it has not been obligatory to disclose more granular data on CRE lending in the UK and other European markets, detailed, loan-by-loan data is not available to public or academic research. This is in contrast with the US, where large datasets on CRE loans are publicly available. However, this is likely to change in the UK, as regulators and industry groups alike are intent upon increasing transparency in future.

3. USE OF DEBT IN CRE INVESTMENT

The aim of this section of the paper is to show the continued demand from CRE investors for debt finance and to analyse some of the different potential impacts it might have. This part of the report provides an introduction to products and structures as well as clarifying some key technical terminology employed elsewhere.

The use of debt in CRE investment is common across developed financial markets in Europe, US and Asia, allowing equity investors to increase their investment capability whilst, at the same time, reducing their costs of capital. Furthermore, by increasing the amount of capital they can deploy, investors are able to construct more diversified portfolio, comprising a greater number of assets and tenants, ranging across geographies and property types. In addition to the explicit costs incurred through interest and fees, borrowers may face more expenditure, especially in the event of loan default. Following the GFC, many equity investors faced lengthy debt restructuring negotiations and, in some instances, loan defaults and enforcement of lenders' rights against collateral. This section examines the mechanics of how debt finance works in different economic and market conditions.

3.1. Investor Motivations and Experience of Using CRE Debt

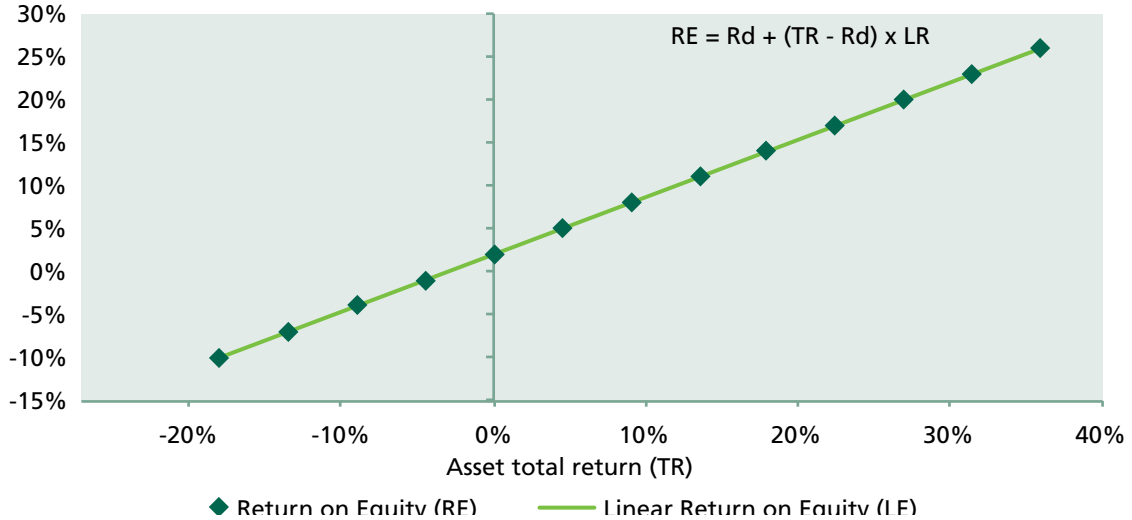
Provided that the cost of servicing the loan is lower that the rate of return generated by the property, the use of debt can enhance an investors return on equity. The relationship between return and debt can be expressed as follows:

Equation 3.1

$$RE = \frac{(TR\text{-}Rd \times LTV)}{(1 - LTV)}$$

Where RE is the return on equity, TR the asset total return, Rd the return on debt, and LTV the loan-to-value ratio. Figure 3.1 illustrates the relationship for a loan based on a 60% LTV at an 'all-in' interest rate of 6%. The larger the amount of debt, the higher the leverage effect, which, with increasing LTV, causes the return on equity to change exponentially. It is important to note, however, that RE can be negative even when TR is positive.

Figure 3.1: Impact of Leverage on Equity and Asset Return



Source: Cass Business School, 2016

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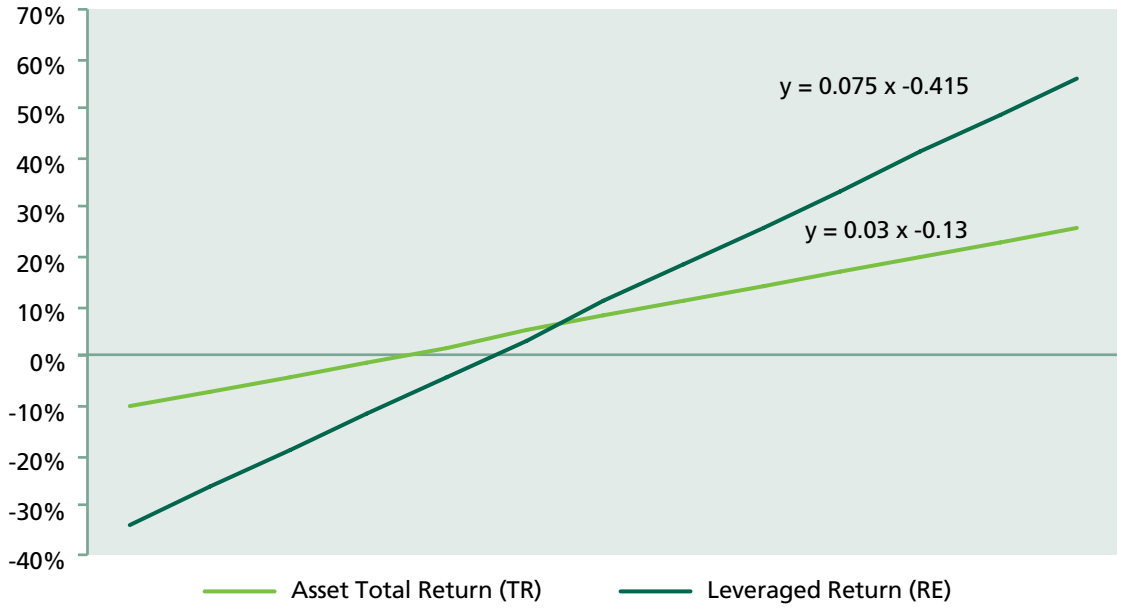
The lower the asset return, due to the higher than expected risk of the asset, the lower the return on equity. In addition, leverage also increases the overall volatility measured in standard deviation of equity return, as illustrated in Figure 3.2, assuming an LTV of 60% and 6% all-in interest rate.

Figure 3.2: Leveraged versus Unleveraged Returns



Source: Cass Business School, 2016

This mathematical relationship, presented in Equation 3.1, triggers the key question: how do investors reduce the probability of their return on equity becoming negative? In other words, what is the optimal relationship between equity and debt capital?

Modigliani and Miller (M&M) analysed the optimum level of debt versus equity level from a corporate perspective in 1958, assuming, in a perfect world, the level of a company's indebtedness should have no impact on the value (and price) of the company. As most property is owned through special purpose vehicles (SPVs) or other corporate structures, this approach may also be applied to commercial property. According to M&M's theory, the value of a company is tied to the value of its assets (both tangible and intangible), and how one chooses to divide this value between debt holders and equity holders has no bearing on its overall value. As debt increases, risk-averse equity investors demand a higher return. Any improvement in net income per share as a benefit of taking on more debt is fully offset by an increase in their required rate of return (or decline in the valuation multiple) the market ascribes to incremental earnings.

Based on this theory, Green Street Advisors LLC has conducted some interesting research (2015) on the long-term effects of leverage on the return for real estate investment trust (REIT) investors, expanding M&M's initial theorem by acknowledging that their perfect world assumption was not realistic. Green Street Advisors concluded that an optimal leverage ratio exists for most companies due to two major exceptions to M&M's assumptions: the existence of taxes and the cost of distress. Tax laws in most countries allow companies to deduct interest expense but not dividend payments, thus creating an 'interest tax shield' that has very real value to any taxable company that has debt. Taken in isolation, this would suggest that all taxable

3. USE OF DEBT IN CRE INVESTMENT

corporations should be highly leveraged so as to minimise the entity's tax bill. The likelihood of incurring costs in an event of severe financial distress, such as insolvency or forced recapitalisation, increases as leverage is increased, resulting in a cap on the debt ratio a firm can carry, which will offset the value of the interest tax shield at higher levels of leverage.

The optimal capital structure for a taxable corporation is where the tax shield and costs of severe financial distress offset each other. For US companies, on average the leverage ratio is approximately 15-20% across all industries. The fact that REITs do not pay corporate income taxes effectively removes the tax shield argument. While companies in other industry sectors have a ceiling on leverage, there is no reason for a REIT to have ceiling leverage level, as there is no tax benefit. REITs provide a special case, where zero leverage ratios make perfect sense. While it is clear that the leverage ratios might be zero for a REIT, determining the point at which costs of financial distress start to put a cap on the maximum leverage ratio is a more difficult to determine. Evidence from US REIT markets seems to confirm that lower leveraged companies have been able to realise better total returns over the long term, as illustrated in Figure 3.3. Evidence from the European REIT market is less clear, as the market is less mature and the tax status of REITs might vary slightly across countries.

Figure 3.3: Individual US REITs Leverage and Returns (10-year to end May 2016)

Source: Green Street Advisors, 2015

Based on the US analyses, leverage over 35% has negatively impacted REIT returns due, mainly, to REITs being forced to issue shares at low prices in order to recapitalise their balance sheets in the period 2009–2010, following the financial crisis. The MSCI US REIT Index declined by more than 75% from its peak of over 1,200 in 2007 to below 300 at its low point in 2009. In the two years, 2009–2010, the volume of cumulative share issuance represented over 50% of the equivalent issuance for the preceding 11 years and, as a consequence, was highly dilutive to value to existing shareholders. A further factor leading to underperformance, as measured by lower total returns for highly leveraged REITs versus low leveraged REITs, was that the more highly leveraged REITs were capital constrained at the bottom of the cycle and, therefore, unable to take advantage of buying assets at distressed prices at that time.

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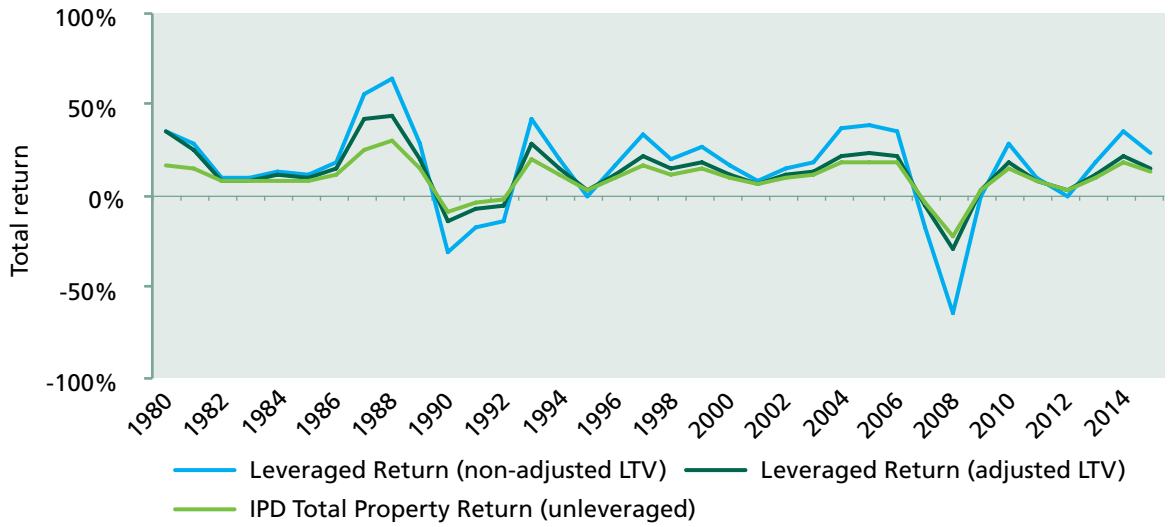
Data from IPD (now MSCI) for leveraged and unleveraged equity returns confirm, however, the negative leverage effect during the last GFC. Large losses were amplified due to the use of leverage, as demonstrated in Figure 3.4. While the 2008 total unleveraged property return, as reported by IPD, was -22.1%, the return on an equivalent asset, leveraged at 60% LTV and assuming a constant all-in interest rate payable of 6% on the debt, not allowing for capital growth (adjusted) would have delivered a return of -29.1%. Furthermore, a property with a non-amortising loan, at 60% LTV, would have delivered a return of -64.3% in that year.

Figure 3.4: Leveraged and Unleveraged Total Equity Returns, 1980–2014



Source: INREV, 2015

3.2. CRE Loan Types and Structures

The use of debt is intended to increase the positive returns on properties, although it can also amplify negative returns. The degree of leverage, expressed in terms of loan-to-value (LTV) ratio, is not the only risk factor, as loan type and structure are exposed to different levels of credit risk. The levels of implied risk and pricing are illustrated in Table 3.1:

Table 3.1: CRE Loan Types

Loan Type	Term (years)	Credit Risk	Typical LTV	Pricing
Investment	5-7	Low – moderate	60-75%	Low
Development	1-3	High	30-60% of Costs	High
Corporate line of credit	1-3	Moderate – high	30-40%	Moderate – high
Bridging	6 month - 1yr	Moderate – high	30-50%	Moderate – high

3. USE OF DEBT IN CRE INVESTMENT

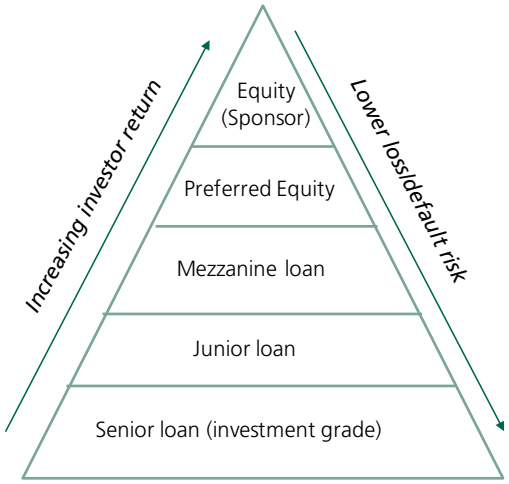
Key considerations for investment loans include:

- Principal amount of the loan (relative to the value of the collateral, i.e. LTV);
- Amortisation or repayment of the loan principal (interest-only or (partly) amortising);
- Interest on the loan, fixed or floating and hedged (relative to cash flow from property);
- Term of the loan in years (with possible extension options);
- Type of collateral property secured by the loan (investment or development property);
- Financial covenants and other non-financial terms of the loan agreement, such as LTV covenants, lender cure rights, etc.; and
- Order of priority in the event of a claim, i.e. senior, junior and/or mezzanine.

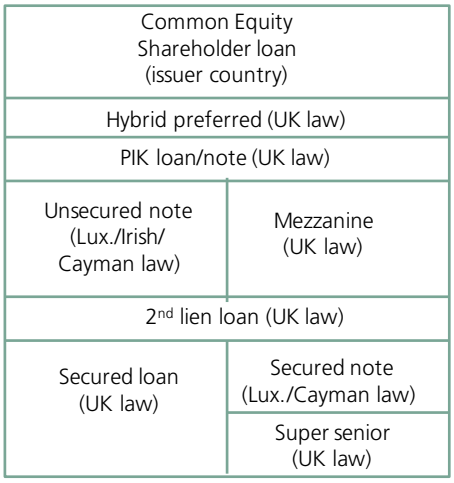
Loan structures: there are various loan types and structures that typically differ in term, risk perception and pricing. Historically, the most common form of financing provided by banks were whole loans. From the early 2000s more granular risk profiles started evolving and loans were broken down according to risk and return potential into a senior-junior capital structure. Figure 3.5 highlights the different components across the capital structure (or stack) of a loan. The creation of loan tranches and splitting of loans into smaller loans either horizontally or vertically has allowed a distribution system to develop, leading to increased diversity. Within private debt markets, diversification and disinvestment are often achieved through loan syndication. Loan tranching enables the originating lender or lead arranger to distribute a loan between investors matching their risk-return requirements. The exact differentiation between a senior and junior loan tranche depends on the originator's evaluation of the risk or quality of the property used as collateral. The cut-off for senior loans typically lies between 50% and 65% LTV, although the risk profile is not solely a function of increasing LTV, but is also determined by other structural and legal features of the loan. These are governed by, amongst other things, legal jurisdiction, type of security and the terms of the inter-creditor agreement. From 2006 onwards, originators have not only created more tranches, but also more complex structures in terms of legal features and re-payment structures. It has often been these complex features that have impeded loan workouts following the GFC and led to suboptimal recoveries at default, often documented by lengthy court cases.

Figure 3.5: Risk/Return in CRE Debt Structures

Typical capital stack



Modified capital stack



Source: N. Lux, 2012

3. USE OF DEBT IN CRE INVESTMENT

Given that CRE loans in the UK are predominantly arranged on the basis of floating interest rates, the hedging of these loans became common practice following the property crash of the 1990s, which was attributed to the inability of borrowers to service their interest rate payments (Ross Goobey, 1992). Swaps were the primary derivative utilised, in part due to the immediate interest rate savings that could be gained from the steeply inverted yield curve that prevailed between 1988 and the late 1990s, by the end of which the provision of hedging products had become a not insignificant profit centre for banks providing commercial property loans.

The existence of a separate swap agreement does not in itself create a problem, provided that its maturity coincides with that of the loan term and the loan does not default during its term. However, in an event of default, the swap exposure (or mark-to-market) is realised as a profit or loss on the day the event of default occurs. In circumstances where a negative mark-to-market value arises and requires the purchaser of the swap (i.e. the borrower) to pay the difference the recovery value of the property collateral sale might be severely compromised. Interest rates in 2007, prior to the GFC, reached 6% for a UK five-year swap, being more than the rental yield on many prime properties at that time. Hence, mark-to-market losses on these swaps were incurred by a defaulting borrower as, under a floating to fixed rate swap contract, it was required to pay a fixed 6% while the swap counter-party paid interest on a floating rate basis to the lender. As floating rates fell significantly after the GFC, swap counter-parties were well 'in the money' on these swap arrangements. Banks (as lenders) had to include these impairments in their real estate debt exposure, as the swap breakage costs would be paid from the sales proceeds of the asset. This would have increased their loan losses on enforcement to much higher than expected levels. It is a commonly held view that swaps played a major role in the initial 'extend and pretend' strategy adopted by banks when faced with non-performing loans coming due on their books. The advantage of this strategy was that no liability was triggered under the swap arrangements, by avoiding a loan event of default.

The use of these derivatives made workout situations more complex in the UK and other floating/swapped markets in Europe compared to the US. Break costs were especially high in situations where borrowers had entered into much longer term swap arrangements than the actual loan term, a practice adopted to take advantage of lower long-term interest rates, the 30-year rate being considerably lower than the five-year swap rate in 2007. Despite these problems, the structure of the derivatives market is fundamentally unchanged; although the banks have to put additional capital against any derivative trade, a borrower may still request a 30-year swap for a five-year floating rate loan obligation.

Loan terms: Nearly 60% of CBRE's CRE loan-by-loan data has a five-year CRE mortgage loan maturity, with the remaining 40% being split between more than five years (29%) and less than five years (11%). As this data only covers publicly available sources, including more prominent borrowers and multi-national managers representing a specific part of the investment market only, these proportions are not definitive for the entirety of the UK CRE debt market.

Analysis of the same data identified 63% of loans originated by debt funds payable on a fixed interest rate, compared to 36% for insurers and an overall market ratio of 16%. The reason for this lies in the structure of debt funds, where pricing is predominantly performance-related and linked to an annual IRR measure.

3. USE OF DEBT IN CRE INVESTMENT

In contrast, the US, German and French CRE mortgage markets traditionally have been based on fixed rate loans with 10- to 30-year maturities, including some amortisation during the term. These loan structures may be better able to withstand a prolonged decline in values, as LTV ratios are not tested and loans will benefit from a recovery in the underlying property market over the cycle.

Furthermore, loan structures have evolved differently throughout Europe and broadly remain country-specific. In the UK market, for example, the predominant loan structure, emerging from the early 1990s onwards, has been a three- to seven-year loan term with floating rate interest. This evolution coincided with the development and growth of unlisted property funds of a similar tenor or duration remaining until maturity, resulting in, and with a requirement for, shorter holding periods and higher churn rates. The borrower mitigates interest rate risk by entering into a floating-to-fixed rate swap (or cap) for the duration of the loan term, which matches the rental income stream generated by the underlying asset.

The US loan market also features other characteristics that may be advantageous in allowing structural diversity, such as the transferability of mortgages, in the case of property sales, and full recourse financing structures. The less prolonged downturn in the US property markets may have been, in part, due to the greater diversity of lenders and loan structures available there than in the UK and the rest of Europe. This is supported by the recovery of capital values, as measured by NCREIF, which returned to their 2007 peak by 2012. In the UK, however, capital values reported by IPD have yet to recover to their 2006 record levels.

Summary Section 3

- CRE investors have traditionally been motivated to use debt to enhance their equity returns and increase their capacity to enlarge the size of their total investments. However, debt can also amplify negative property returns into even greater equity losses.
- The optimum debt level is hard to determine, but evidence from US REITs shows that leverage above 35% adversely affects returns. Data for European REITs is less conclusive.
- Evidence from INREV and MSCI shows the negative impact of high leverage on total returns for funds after the GFC. This experience in using debt has not been uniformly positive for borrowers.
- UK loan structures have led to greater complexity in post-GFC work-outs.
- US and other markets might have been more resilient in recovering from GFC-related downturns in collateral value due to their longer term, fixed rate and partly amortising loan structures.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

This section considers the following questions:

- What is the most relevant delineation of CRE debt capital sources?
- How have their respective market shares evolved through time?
- How does the volume of debt securitisation differ across regions?
- What is the role and relevance of the syndication market?

Introduced by an historic overview of the UK's CRE private debt market in the global context, this section provides an understanding of the different types of real estate debt available within the 'four-quadrant' capital funding framework and analyses the importance of each source and their development. Table 4.1 sets out the quadrants, distinguishing between private and public equity and debt market investment in real estate.

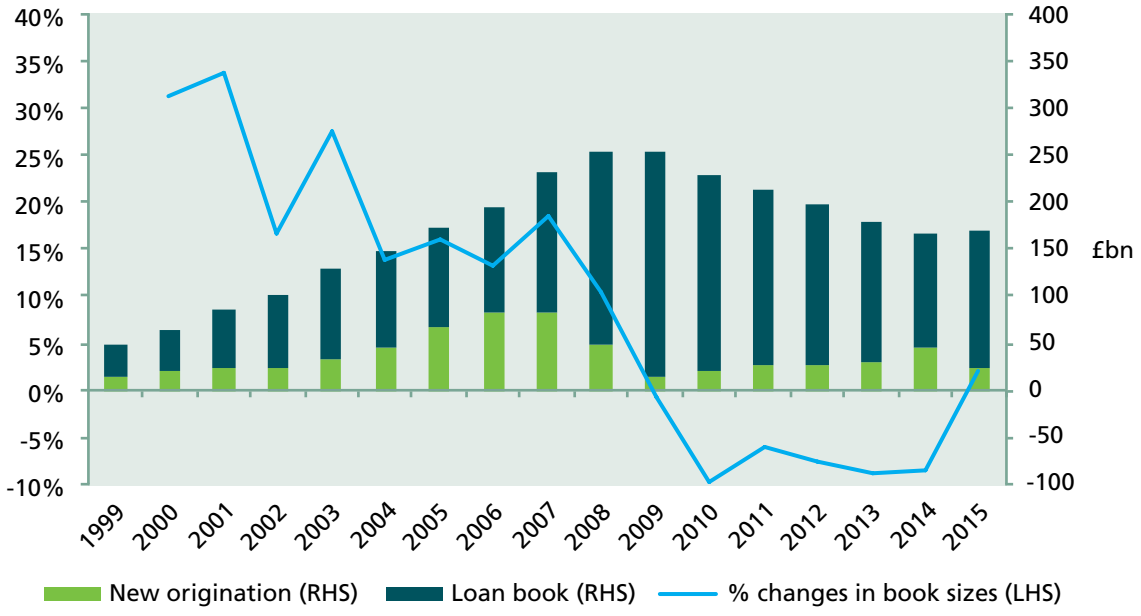
Table 4.1: Four Quadrants of Real Estate Investment Funding

	Private Markets	Public Markets
Equity	Direct property holdings, unlisted funds	Listed property companies, REITs
Debt	Bi-lateral mortgage loans, secured corporate facilities and unsecured loans	Senior unsecured corporate bonds, covered bonds and CMBS

4.1. Private CRE Debt Market in Four Quadrant Perspective

Figure 4.1 shows the outstanding CRE debt in the UK since 1999 (excluding social housing), totalling £168.4 billion by year-end 2015 (£183 billion including social housing).

Figure 4.1: UK CRE Total Private Debt,1999–2015



Source: De Montfort University

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Total UK debt secured by the UK specialist commercial property lending market, including loans held in the CMBS market, loans sold to the National Asset Management Agency (NAMA)[2] and loans originated by and/or held on the balance sheet of banks, is estimated to be £211.6 billion (De Montfort University 2015). Figure 4.1 also highlights the change in growth since the GFC, with significant negative year-on-year growth of total loan books from 2008.

The total amount of outstanding CRE debt across Europe is closely related to the maturity of real estate investment markets, debt markets and the overall size of the European economy. For instance, Eastern European countries only have a small investment universe of CRE suitable for institutional investors and their bonds and equity markets are relatively small as their overall economies are typically small as well. Although real estate markets in the Nordic countries (Sweden, Finland, Norway and Denmark) are highly developed, these economies are small and well-funded by domestic capital. As a result, they do not attract large scale external investment inflows. Hence, this report focuses on the larger, more developed European economies, such as Germany, France, the Netherlands, the UK and, in some instances, Spain and Italy, being countries that have attracted large global investments in their national real estate markets in addition to their own internal investment flows. Where data permits, the analysis also includes comparisons with the US.

In the UK, maximum senior loan to value ratios (LTVs) peaked in 2005 at c. 83% for prime office investments and c. 76% for secondary office assets according to De Montfort University (DMU), these ratios having reduced subsequently to fairly stable levels of 65% for offices and 60–62% for secondary offices. Approaches to measuring debt capacity by banks have changed, focusing not solely on LTVs but giving increasing priority to debt yield and interest servicing ability throughout the duration of the loan term. The LTV ratio on maturity has also become a more important measure rather than that at Day One of the loan.

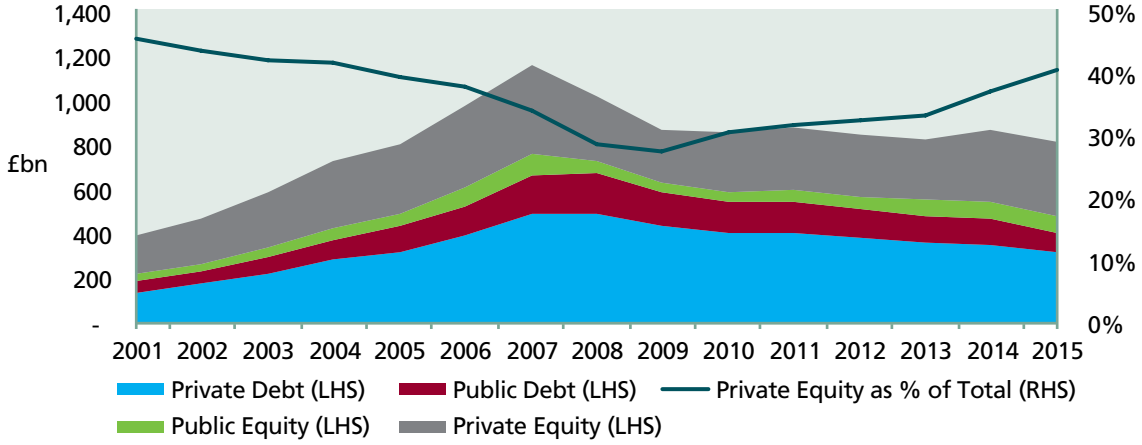
Options for funding real estate investment transactions vary. Equity investors may use unsecured corporate credit lines or mortgage loans provided by banks (i.e. private debt) or use debt provided by unsecured or secured bond issuance (publicly-traded debt).

Categorising the total invested stock of CRE located in a specific country by its public and private debt and equity segments provides additional insights. Figure 4.2 shows that there have been significant changes in these components over the past 10 years. Although private equity, as a percentage of UK-invested stock, fell from 46% in 2001 to 40% by year-end 2015, this disguises the increase from 27% in 2008.

[2] NAMA: National Asset Management Agency (NAMA) acquired good (performing) and bad (non-performing) loans secured by all forms of real property from five financial institutions whose head offices were located in Ireland at that time. Managing the loans that it holds, the intention is to obtain the best possible return for the Irish taxpayer over an estimated time frame of seven to ten years from inception. Subject to market conditions, NAMA is on target to redeem all senior debt (€30.2 billion) by end-2017.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

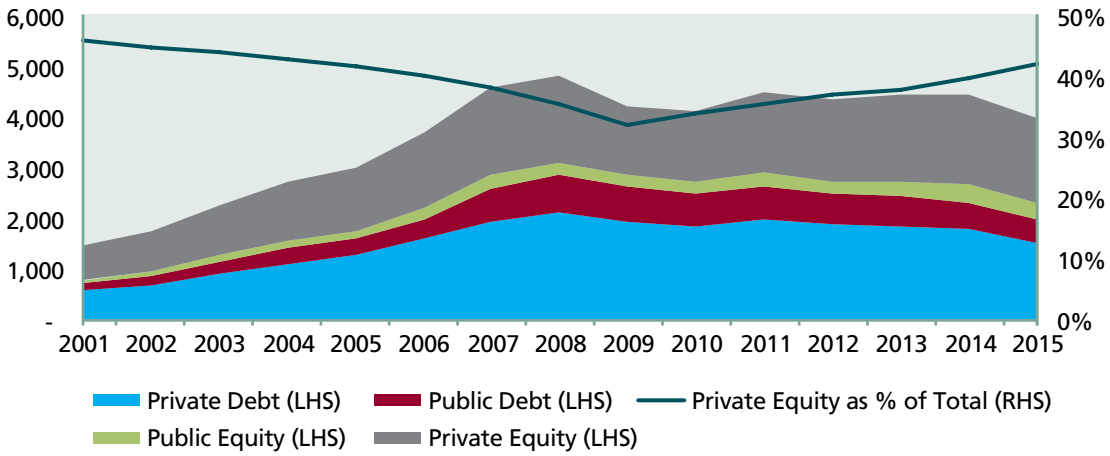
Figure 4.2: UK CRE Invested Stock, 2001–2015



Source: Cushman & Wakefield

Across Europe, over the same period a similar composition can be seen as for the UK (Figure 4.3). Splitting debt into its private and public segments provides a more detailed picture of outstanding CRE debt across Europe. Adding other sources of debt in other European countries, the total estimate of European CRE debt is €3 trillion.

Figure 4.3: European CRE Invested Stock, 2001–2015



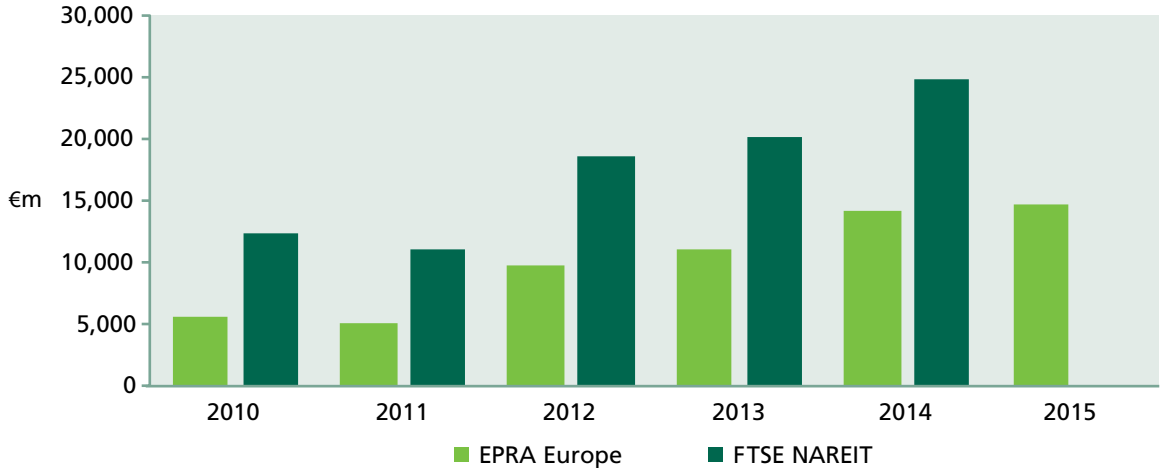
Source: Cushman & Wakefield

4.2. Public CRE Debt Market Components and Debt Funds

The public debt market is defined as all listed secured and unsecured bonds issued by publicly listed (REITs) or other private CRE companies. The European public CRE debt market is smaller than the private debt market, contrary to the composition of the US debt market.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Figure 4.4: Unsecured Senior Bond Issuance (REITs and REOCs)



Source: EPRA, NAREIT

Listed REITs and property companies across Europe and the US regularly raise equity or debt to fund their property operations. Figure 4.4 compares the amount of debt raised by REITs and property companies in Europe versus the US since 2010.

Over the last five years in particular, US REITs have been successful in issuing debt due to the low funding costs, with the increase in volume also responding to the low yields from 10-year government bonds, the benchmark against which most REITs price their issuances. In June 2016, for example, Vonovia SE issued an unsecured 10-year bond at 1.50%. A total of 63 US REITs have issued bonds over the 30 months to mid-2016, representing nearly 30% of the 221-company universe represented in the FTSE NAREIT index.

On issuing corporate debt, the originating institution will need to determine its internal funding costs. For a corporate entity, such as a REIT or property company for example, the funding costs of a bond issue will be determined by the creditworthiness or rating of the company. The reason is that the bondholder does not have direct access to a mortgage pool, but, in effect, lends to the company itself; hence, the bondholder is exposed to the credit or counter-party risk of the corporate entity. In a CMBS securitisation, by contrast, the originator sells the loan, or mortgage, to a separate off-balance sheet party, such as an SPV, which acts as the bond-issuing entity. In this case, the bondholder is paid directly from the income-generating assets that secure the mortgage. Hence, the pricing of the bond is a function of the creditworthiness of this underlying asset pool.

4.2.1 European Covered Bond Market

Covered bonds are a form of public debt funding that are widespread in Europe, being issued by banks and retained on their balance sheets. Established in Germany in 1769, whilst providing a framework for the issuance of debt, these products were passed around the start of the twentieth century. According to the European Covered Bond Council (ECBC, 2015), outstanding issuance of covered bonds secured by mortgages currently exceeds €2.1 trillion. The largest issuers by country are domiciled in Germany, Denmark, France and Spain. Each of these jurisdictions had more than €250 billion of bonds outstanding at year-end 2015. In addition, Sweden, Italy, the UK, Switzerland and Norway each had €100 billion or more outstanding. It should be noted, however, that the ECBC statistics do not differentiate between residential and commercial mortgages.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Overall, covered bonds are a special financing structure existing in 24 European countries in similar formats, making up between 30–50% of total bonds issued by banks. A covered bond is a registered fixed income security issued to raise capital specifically secured by the general corporate credit of the bank as well as a covered collateral pool, which remains on its balance sheet. The debt pool can consist of mortgages or public sector loans and can change over time, as long as it meets certain eligibility criteria. The advantage for the bondholder is that, in case of a default, it has recourse to both the issuer (bank) as well as to the cover pool of mortgages. The bank also ensures that the cover pool does not suffer any credit deterioration meaning the bank actively manages the pool of assets and substitutes securities in order to maintain the credit quality. Hence, the cover pool is a flexible portfolio (the 'reference' portfolio).

As a result of credit support by governments, in case of default, covered bonds are considered to be almost as secure (quasi-secure) as government bonds, which makes their funding costs for the issuing bank very low. Covered bonds have special LTV limits, used solely for calculating collateralisation rates for the cover pool. For residential mortgages, covered bond regulation in the majority of jurisdictions (see Table 4.2) prescribes a maximum of 80% LTV, which is also the limit under the EU's Capital Requirements Directive (CRD). In a situation where the covered bond programme under German law is part of a regulated programme, a stricter limit of 75% LTV might apply. Limits for commercial mortgages tend to be slightly lower, at 60%. In addition to regulatory limits, some issuers may prescribe stricter limits in their programme documents, and individual countries might impose tighter national regulations.

Table 4.2: Global Covered Bond Regulation

	Germany	Denmark	Spain	France	Ireland	Italy	Lux.	Norway	Portugal	Sweden	UK	US	Canada
Specific Legal Framework	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
Specialist Banks	×	×	×	✓	✓	×	✓	✓	×	×	×	×	×
Specific Supervision	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
Cover Pool (Mortgage)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LTV (Residential)	60%	80%	80%	80%	75%	80%	80%	75%	80%	75%	70%	80%	
LTV (Commercial)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%		
Limit on substitution of assets	10-20%	15%	5%	15%	15%	15%	20%	20%	20%	20%	10-20%	10%	10%

Source: European Banking Authority.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

One example of country-specific covered bond legislation is the German Pfandbrief regime, which limits to 60% the mortgage lending value (MLV) for residential and commercial mortgages and it is notable that the MLV is typically lower than the market value, as defined by general market participants. This conservative value concept builds in further protection against defaults and losses. However, there is no absolute lending limit, only a relative one, which means that mortgage loans may have a higher loan to mortgage lending value (LTMLV) than 60%, although only the part of each loan up to 60% LTMLV is part of the cover pool (§ 14 PfandBG). For example, if a bank has originated total real estate loans of €500 million with an average LTV of 70%, it can issue a covered bond for €428 million, which is equivalent to 60% LTV of each loan.

In 2015, of €58 billion of the Pfandbrief bond issuance, over €40 billion was mortgage Pfandbrief issuance, according to the VDP - Verein Deutsche Pfandbriefbanks (German Covered Bond Bank Association). Outstanding issuance of mortgage Pfandbrief bonds at year-end 2015 stood at €198 billion, out of a total of €384 billion in covered bonds issued by VDP members. In the last few years, the spreads on Pfandbriefbonds have been negative, in tandem with the government bond spreads. This cheap Pfandbrief funding has resulted in VDP-member banks (using Pfandbrief funding) achieving a dominant 58% market share in their domestic German commercial property financing market. Globally, the covered bond market is worth approx. €2.5 trillion (end 2014) with mortgage covered bonds representing 80% of this. Cover pool losses range from 2–3% in countries such as Germany, the UK and Finland, and up to 13% in Spain. It is also worth noting that, while the commercial mortgage lending market nearly closed in 2008, the covered bond market had grown at rates of 45% and 29% in 2007 and 2008 while banks benefited from the ECB's covered bond purchasing programmes in 2010 and 2011, thus avoiding a similar liquidity problem as occurred in CMBS.

4.2.2 Commercial Mortgage-Backed Securities

Commercial mortgage-backed securities (CMBS) are bonds, whose payments are backed by one or more commercial mortgage loans. CMBS bonds may be issued by investment banks as part of a conduit (or repeat issuance) programme or by a one-off corporate issuer (known as agency CMBS). CMBS is part of the asset-back securities (ABS) market, which also securitises residential mortgages, automobile loans and credit card receivables, as well as other types of consumer debt. CMBS evolved originally as a distribution vehicle of bank's balance sheet loans in the US during the 1980s savings and loans crisis. CMBS differs from covered bonds in a number of ways, as highlighted in Table 4.3.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Table 4.3: Comparison CMBS versus covered bonds

Characteristic	Covered bonds	CMBS
Motivation of issuer	Refinancing	Risk reduction, regulatory arbitrage, refinancing
Who is the issuer	Generally originator of loans	Special entity
Recourse to originator	Yes	Generally no
Structure	Assets generally remain on balance sheet, but belong to cover pool	Assets are transferred to special entity
Impact of issuer's capital requirements	None	Reduction
Legal restriction of issuer or eligible collateral	Yes	Generally none
Management of asset pool	Generally dynamic	Predominantly static
Transparency of asset pool to investors	Limited (but regularly controlled by trustees and rating agency)	Generally high
Prepayment of assets	No pass through as assets are replaced	Generally full pass through
Tranching	None	Common
Coupon	Predominantly fixed	Predominantly floating

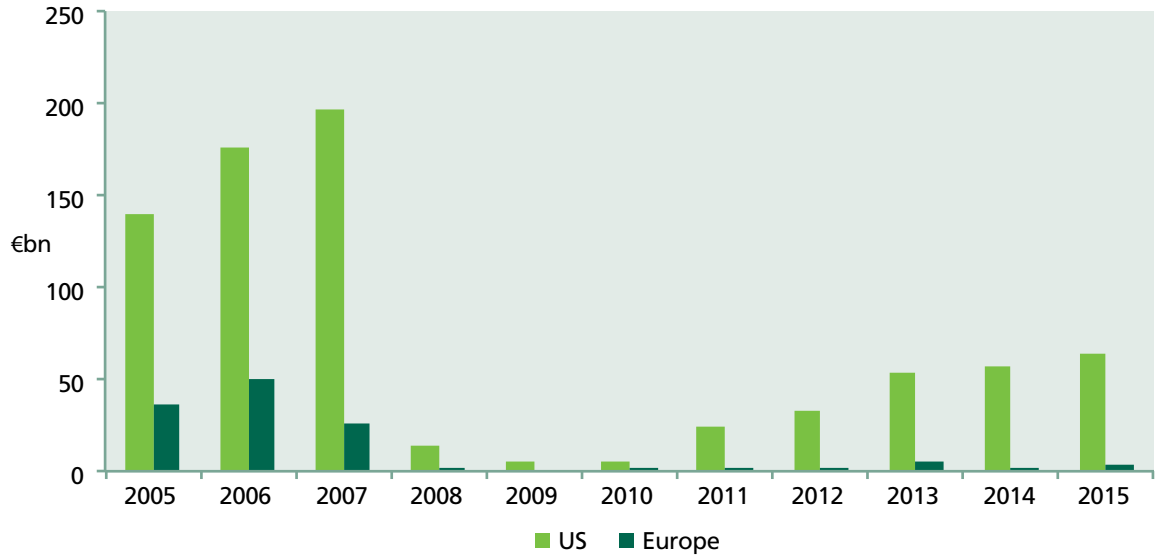
Source: Various, Lux 2016

CMBS issuance started in the European markets in the late 1990s but has yet to reach the same popularity as in the US. Figure 4.6 shows European CMBS issuance in 2006 of €50 billion, but this peak was less than 30% of US levels. Since 2007, European CMBS issuance has been small, partly due to the punitive regulatory treatment by the ECB and other regulatory bodies.

Earlier sections of the report considered the differences between bank-based and market-based economies. European markets have largely evolved as bank-based economies and, consequently, have been a smaller fixed income investor base for CMBS bonds. In addition, European CMBS deals have shown fundamental structural differences to US CMBS transactions, with European CMBS being seen as less attractive due to inconsistent collateral structures, mostly multi-country jurisdictions, complex non-standard legal and payment structures and poor disclosure requirements.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Figure 4.5: US versus European CMBS Issuance 2005–2015 (€bn)



Source: Moody's Investor Services Inc., 2016

According to Moody's 2016 US CMBS Outlook, the latest leverage in US CMBS, as measured by Moody's loan-to-value (MLTV) ratio, already exceeds pre-crisis peak levels, although debt service coverage remains historically high, owing to prevailing low interest rates, thus providing protection against loan default during the term. However, any rise in interest rates will reduce this cushion.

The Moody's report also notes that the amount of second-generation CMBS (issued post GFC) outstanding have exceeded that of first-generation issuance during 2016. Total outstanding volume peaked at about $800 billion in 2007, declining to about $500 billion currently, at which level it should remain stable over the next few years. Due to the US 10-year CMBS term structures, major refinancing is expected to take place in 2016-2017, given the high amounts issued during 2006-2007.

In the UK, only 10 CMBS transactions have taken place since 2008 and fewer in the rest of Europe. The main issuing banks are Deutsche Bank, which is the largest CMBS securitisation bank globally, and BAML. Today, CMBS issuance in Europe is usually the result of a specific demand from a club of willing debt providers for a select portfolio or borrower. These providers will use an arranging bank to structure and distribute the bonds via private placement, in contrast with a free over-the-counter sale and open traded market, such as that in the US. Examples include Blackstone's Chiswick Park, the Tesco securitisations and Land Securities Plc CMBS bonds backed by rental payments from assets leased to the UK government. Each securitisation was a single tranche, fixed coupon transaction with long maturities from 2017 to 2040. Between 2014-2016 there have been few European deals, of which only one has been a multi-jurisdictional arrangement.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

While pricing of CMBS bonds can make CMBS issuance profitable again for investment banks, providing a positive spread between the weighted average bond pricing and the underlying loan margin, regulatory changes have left CMBS bonds as an unattractive investment opportunity for many of the traditional CMBS investor base.

Latest developments in capital regulation have also discouraged debt providers from holding real estate debt in the form of a CMBS bond as the higher-rated tranches attract a high capital charge under banking regulation and Solvency II in relation to other asset classes and relative return. In addition, the originating bank must hold a minimum of 5% of the outstanding bonds on balance sheet, usually the most risky CMBS issuance in Europe is expected to remain low therefore.

4.2.3 Debt Funds

Structurally and legally, a debt fund is not, by definition, an investment vehicle but may form part of an alternative investment fund, which may choose to invest in various forms of debt instruments. With no single universally accepted definition, there is a range of structures that could potentially be called debt funds.

The Financial Stability Board Global Shadow Banking Monitoring Report 2013 describes three different models as 'direct lending' structures in non-bank lending:

1. In the first model ('bilateral lending' or 'private placement'), the non-bank institution develops a dedicated expertise to invest in loans, i.e. screen and select suitable borrowers or projects. In some jurisdictions such as the US, these activities are not new and have been in place for a long time. For instance, the US 'private placement' market has enabled insurance companies to finance corporates for decades, also benefiting from a specific credit assessment infrastructure. In other jurisdictions, especially in parts of Europe, non-bank lending and private placements are in the process of being started (e.g. in France) or have recently met with increased investor interest, as in Germany with the long standing Schuldschein market. Large insurance companies, such as Allianz and AXA, have recently (between five and six years ago now) announced the set-up of new dedicated debt teams to invest in corporate loans, CRE, and infrastructure projects. In addition, fund managers have launched senior debt funds specifically targeting insurers, which are governed by Solvency II.
2. In the second model ('specialised loan funds'), a fund manager pools a number of loans together and non-bank investors buy shares in the funds. By the use of pooling and diversification, this is economically similar to securitisation, although there are some differences. The launch of loan funds has accelerated markedly since mid-2012 not only in Europe where banks are still deleveraging, but also in the US. In recent launches, the fund manager was generally part of a hedge fund or a private equity fund, but there are also specialized credit funds. In particular, private equity funds leverage on their expertise of identifying target companies for acquisition purposes, and extend it to debt financing. Investors in loan funds are generally non-banks that cannot develop an in-house credit selection and assessment capacity and/or want to diversify exposures.
3. The third model ('co-origination with a bank') is a variant of the 'originate-to-distribute model' that was prevalent before the crisis. A non-bank and a bank enter into a partnership whereby the bank screens the borrowers, originates the loans and distributes them to the non-bank, which provides the funding. 'Skin-in-the-game' arrangements are generally in place to facilitate the alignment of incentives between the bank and the non-bank. This model is so far mostly prevalent in Europe, and mostly involves insurance companies … ."

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Lending Model 1 is resource-intensive (and, therefore, expensive), as the new lender has to put in place infrastructure in-house (origination, IT, risk management, back office, etc.); hence, this model requires high volumes in order to be profitable. Lending Models 2 and 3 are the most popular structures for debt funds.

As shown in Table 4.4, INREV collects data from 43 European debt funds, each with a target life of between five and 10 years. However, only about 37%, or round €10 billion, of the €28 billion raised by these debt funds has been lent to date. Approximately 36% of these funds offer senior lending only; of the remainder (64%), 73% offer a mix of senior and junior lending and 27% only junior and mezzanine lending. The big difference between target IRRs for UK-based and other European debt funds is noticeable and implies that many UK debt funds must focus on junior and mezzanine lending to achieve these returns.

Table 4.4: European Debt Funds Summary

Manager Country	No. Funds	Average of Target IRR - From (%)	Max. LTV	Target Equity (€m)	No. Loans Provided
France	4	3%	66	11,935	6,961
Germany	6	4%	74	3,150	693
Luxembourg	1	3%	65	320	88
Switzerland	1	6%	65	n/a	n/a
United Kingdom	31	10%	77	12,822	2,820
Total funds	43	8%	74	28,227	10,562

Source: INREV 2016

In terms of diversification, the majority of these funds have target portfolios of 15 to 30 loans whereas, according to modern portfolio theory, a portfolio is only considered diversified if it comprises more than 30 assets. The risks for capital providers are higher, therefore, which increases the risk premiums required, thus being reflected in the average target IRR. As a consequence, funds charge higher interest on loans than banks would. At the same time, this might increase the risks of loan portfolios held by debt funds that are mainly financing borrowers with higher yielding assets. Lower yielding assets, perceived to be less risky, will be financed within the tight bank frameworks provided by regulators giving preferential capital treatment to prime assets.

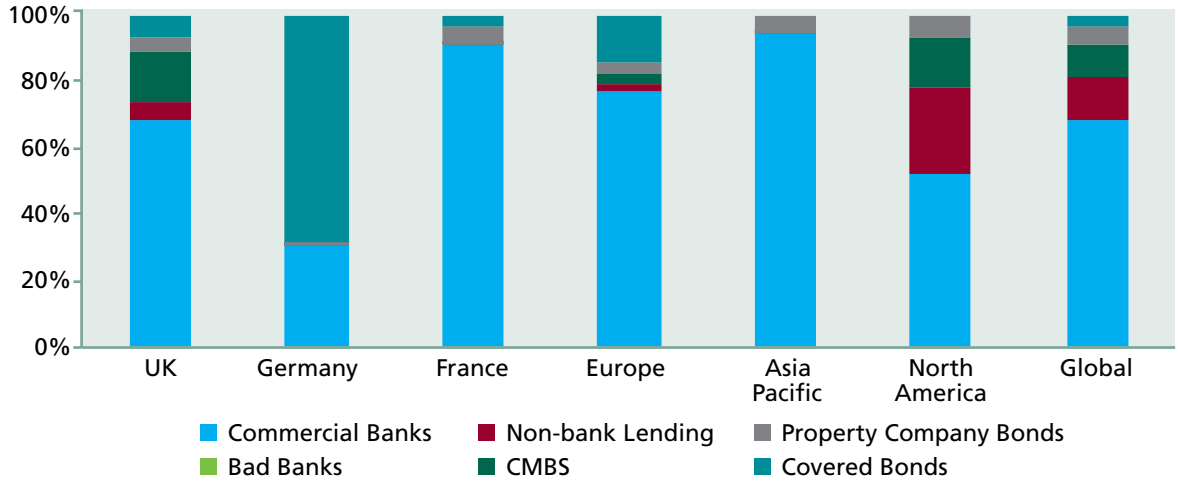
4.3. International Comparison by Lender Type

For the US, commercial real estate-related loans accounted for 22% of total bank lending in 2005 (Lopez, 2007). In contrast, for banks in the 17 countries surveyed in the European Union at the end of 2007, commercial property-related loans represented 11.6% of total loans (ECB, 2008). ECB president Mario Draghi, when questioned on consultations to create a market for asset-backed securities and whether, in potentially solving one problem, an entirely new one would be created (given that asset-backed securities were the root, at least in the United States, of the financial crisis of 2008 and 2009) responded that, in the US, 80% of credit intermediation goes via the capital markets. In the European situation it is the other way round: 80% of financial intermediation goes through the banking system (Draghi, Bratislava, 2 May 2013).

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

An analysis of each of the private and public debt segments allows the specific lending sources to be identified. In the private debt segment, C&W separate out commercial bank, non-bank and bad bank loan books and, in the public debt segment, covered bonds (representing banks using this public funding), CMBS and property company bonds (mostly senior unsecured bonds). This data is available for all three global regions, Americas, Asia-Pacific and Europe, with the UK and other key European countries at three points in time: year-ends 2001, 2008 and 2015. At year-end 2001, data shows the considerable differences between CRE lending market structure inside Europe. At the end of 2015, in the UK, nearly 70% of CRE debt was provided by banks, with CMBS being 15%, followed by 6% for covered bonds, almost 6% for non-bank lending and 3% for senior unsecured bonds. This market structure differs greatly from those in Germany and France. The German market is dominated by covered bond issuance (from banks) accounting for nearly 70% of all lending, and 30% of commercial bank lending, while the French market is dominated by commercial bank lending with a market share of over 91%, 5% of unsecured corporate debt, 4% of covered bonds Figures 4.6–4.8).

Figure 4.6: Global CRE Debt Sources, 2001

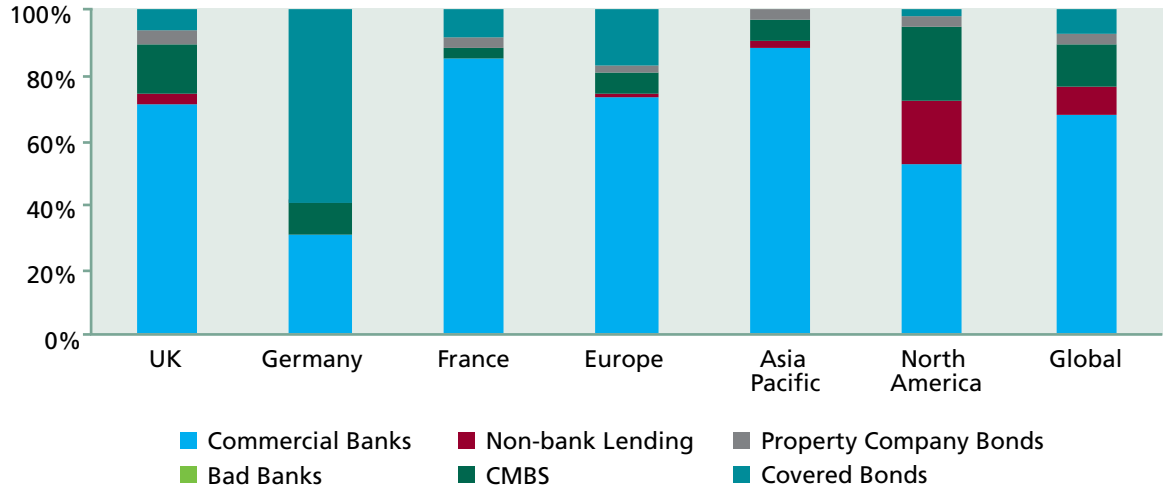


Source: Cushman & Wakefield, 2016

As at year-end 2001, European averages disguised country-specific extremes but showed, at nearly 80%, a high reliance on bank funding, with covered bonds at almost 15%. Relative to other regions, the North American CRE debt market was already more diversifies in 2001; banks represented just over 50% of all debt, with non-bank lenders (mostly insurers) holding over 25% and CMBS over 15%. Asia, by contrast, was dominated by banks with a near 95% market share.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

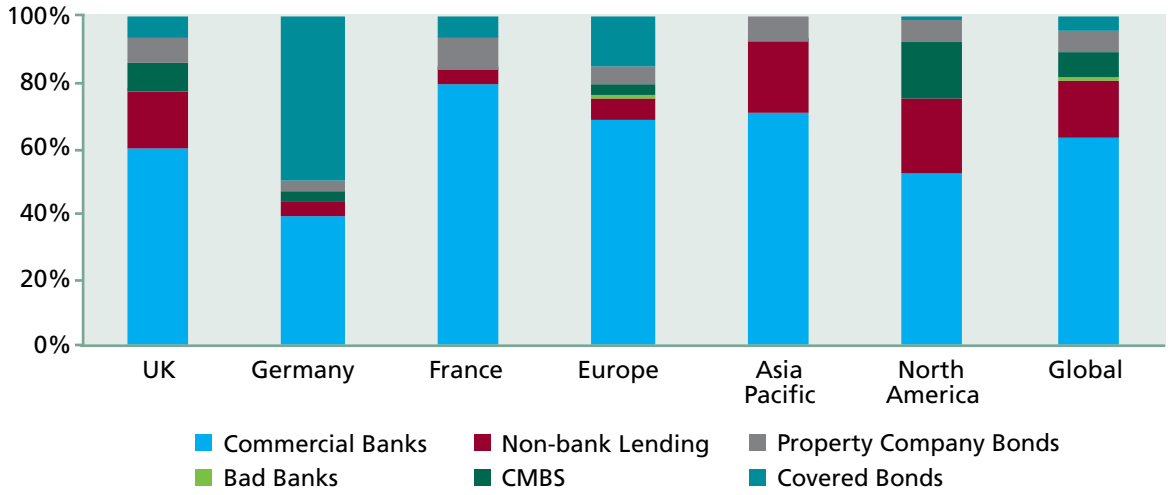
Figure 4.7: Global CRE Debt Sources, 2008



Market composition changed between 2001 and the peak of the property investment and lending cycle in 2007. With some of the downturn already reflected in lower values, changes in the UK, Europe and globally could be summarised as:

- Market shares across the UK source had not yet changed materially from year-end 2001;
- In Germany, CMBS had taken nearly of 10% market share away from covered bonds;
- Covered bond-funded banks and CMBS combined stood at over 12% of the overall European market;
- Across Europe, covered bonds and CMBS combined had risen to nearly 25% from less than 19%;
- The North American and Asian markets also saw strong growth in CMBS shares.

Figure 4.8: Global CRE Debt Sources, 2015



4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Finally, the latest breakdown, for year-end 2015, shows the emergence of further changes as a result of the GFC, which brought a sustained period of economic recession, unprecedented monetary policy easing and several rounds of regulatory change to address the capital reserve requirements of banks and other financial institutions (see Section 6 for a more detailed consideration of regulatory impacts). As a consequence of these changes, a number of significant market changes occurred:

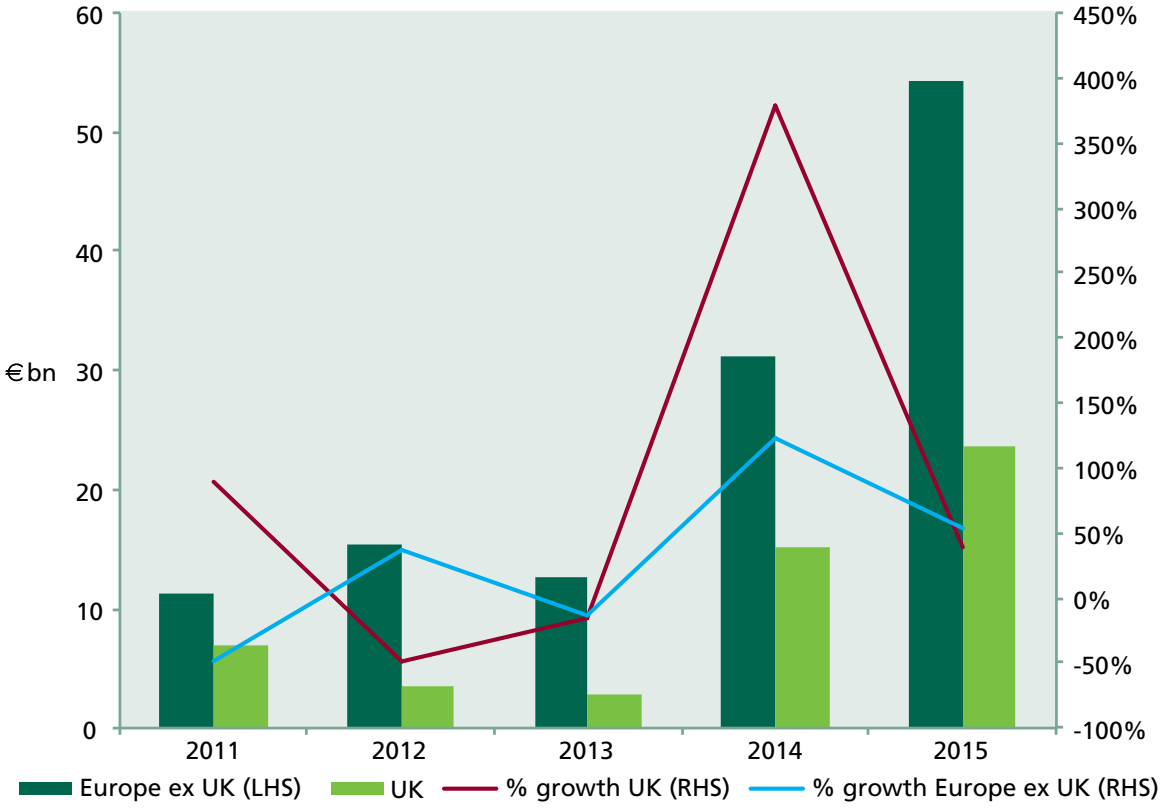
- In the UK, non-bank lending had risen to over 17%, while CMBS had halved, from 16% at year-end 2008 to 8%. Covered and senior unsecured bonds made up a further 15% approximately, leaving less than 60% share for UK and other banks (compared to around 68% in 2001);
- In Germany, the covered bonds share had reduced further, to 50%, with banks representing nearly 40%, a substantial increase on recent averages of around 30%. A decline in CMBS, to below 3%, was offset by the emergence of non-bank lending and corporate bonds, to nearly 5% and just over 3% respectively;
- By 2015, the debt market in France had also experienced an emergence in non-bank lending, to nearly 5%, whilst corporate bond issuance had risen to nearly 10%. This resulted in the bank share falling to below 80%;
- Europe-wide, non-bank lending showed the greatest growth, a near fourfold increase over the 15 year period, followed by corporate bonds. Combined bond issuance rose to nearly 25% despite the dramatic decline of CMBS. Overall, bank share declined by almost 10%, to below 70%;
- The composition of the North American market changed the least of any region throughout the entire 15-year period ; in contrast to other markets, the loss by non-bank lenders of almost 4% of market share was the biggest change; and
- Asia Pacific showed strong growth in non-bank lending, although this dramatic growth (to over 20% of the total market in the region) may have been due to private trust lending in China, where these types of lender have been able to circumvent central bank's restrictions and are very different to non-bank lenders in other regions.

4.4. Role and Relevance of the Syndication Market

Loan syndication may be defined as the (partial) onward sale of an existing or newly originated (CRE mortgage) loan by the originating bank to another bank or to multiple lenders. This may be achieved at loan origination by forming a club of lenders, with one bank acting as the lead arranger and agent bank to negotiate with the borrower. Syndication may also take place after a loan has been originated by a single (investment) bank , which subsequently identifies other interested syndicate members and negotiates terms for the (partial) onward sale of the loan with each party. In effect, the syndication market gives originating banks a way of reducing their risk exposure to CRE mortgages. Syndication also occurs in other non-CRE sectors, especially where very large loans are involved. The European CRE loan syndication market is a private and illiquid market, however, with little published data available, in contrast to the public CRE debt markets, although syndication has become the principal distribution channel for many balance sheet bank lenders and investment banks since the GFC.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Figgure 4.9: Growth of European Syndication Market, 2011–2015 (€bn)



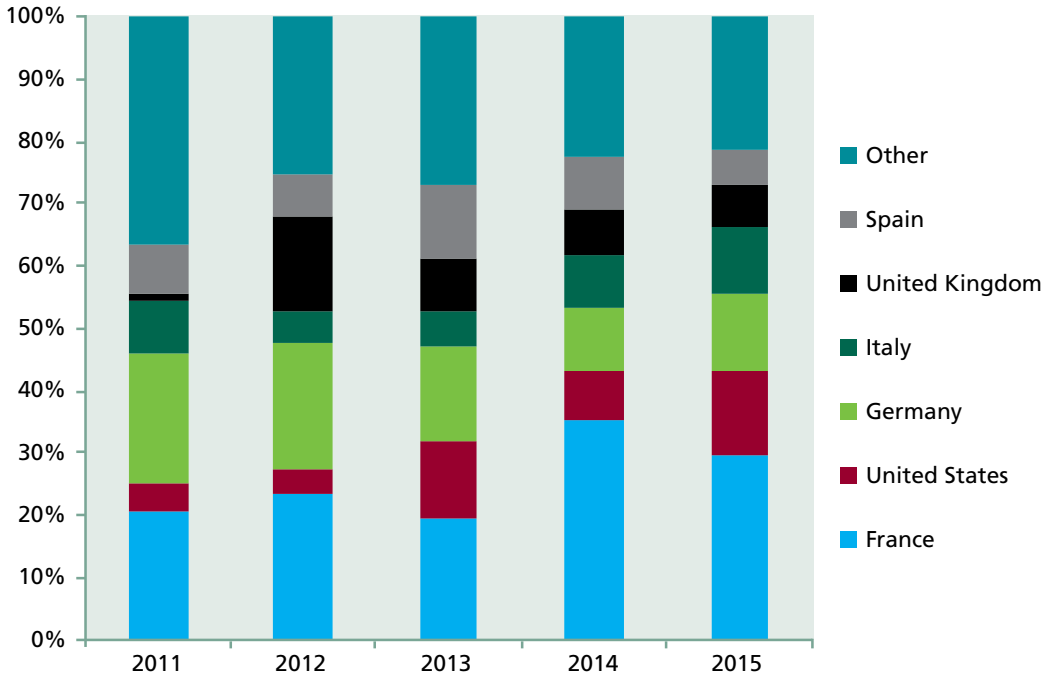
Source: Dealogic, 2016

Based on cumulative 2011–2015 annual volumes, Dealogic estimates the value of the European market to be $212 billion, which is less than one third of total US CRE loan syndication volume (of $697 billion) over the same period. Assuming an average loan term of five years, syndication represents a significant share of the outstanding amount of CRE mortgages in the UK and across Europe, at 26% and 15% respectively. Despite its smaller relative size, the European syndication market has been growing since the GFC and can now be considered a key distribution vehicle for banks. Figure 4.9 shows the growth of the European syndication market over the period 2011–2015.

Dealogic market data shows that French banks are the biggest lead arrangers across the European market and, in 2015, had a 25% market share, followed by 15% for UK, 14% for US and 11% for German lenders (Figure 4.10). A limitation of the Dealogic data is that it does not track the identities or domiciles of syndicate members. Based on market discussions, however, active syndication partners include Asian and Middle Eastern banks, as well as regional European banks and non-bank lenders.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Figure 4.10: European Syndication Market by Origin of Lead Arranger, 2011–2015



Source: Dealogic, 2016

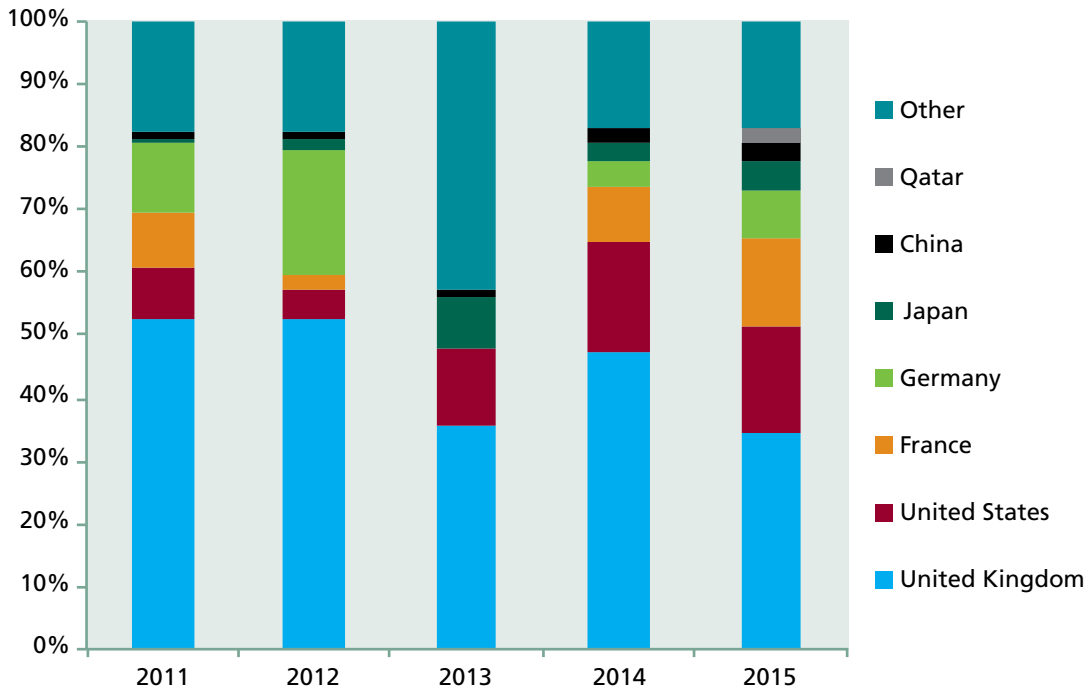
Analysing structures across Europe, most syndication markets are highly concentrated, with a small number of dominant lead arrangers. In 2015, the top five lead arrangers in Germany and France syndicated 74% and 71% of the totals in each country by value respectively. This contrasts with the US and UK markets, with just below 50% and 44% for the top five players.

In the UK, the top three syndication banks active as lead arranger are HSBC, Lloyds and RBS, which, between them, take 30% of the market and their market share has been relatively stable over the last 10 years. At year-end 2015 the most active foreign bank in the UK has been BNP. In France the market is more concentrated, with Natixis, Credit Agricole and BNP having a total market share of 52% as lead arrangers in all syndications. In Germany, historically, the key arrangers were LBBW and Commerzbank Group. However, consolidation and changes in the German banking market have led to changing patterns of active banks and, over the last two years, Société Générale has increased its activities in the German lending market, whilst JP Morgan re-entered the market with a key deal in 2015. In 2015, only 22% of German syndication volume came through domestic German banks.

A review of the most active players buying and participating in syndications by national origin shows that UK banks are the most active in the UK market but play a less dominant role in the rest of Europe. However, the diversity of the UK distribution model for bank-originated real estate debt is apparent in the number of active players from non-European countries, including Qatari, Japanese and Chinese lead arrangers. These lead arrangers are not (yet) active in the rest of Europe, but provide acquisition finance for equity investors from their home countries. In other words, when sovereign wealth funds from Asia and the Middle East choose to leverage their investment to enhance returns, they look to their domestic banks with whom they have existing relations to lead in arranging their debt packages. With a high proportion of overseas investors active in the London and wider UK markets, the lending market indirectly benefits from this international diversification.

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

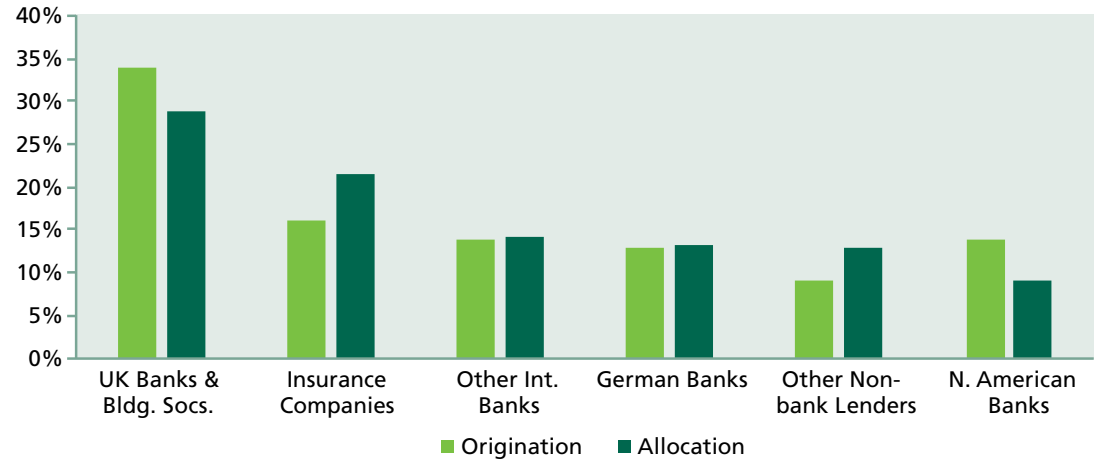
Figure 4.11: UK Syndication Market by Origin of Lead Arranger, 2011–2015



Source: Dealogic, 2016

The re-allocation of CRE loan risk through syndication can also influence the distribution of risk by lender type. A survey of five syndication desks in London suggests that over 35% of loan sell downs are placed with insurers and other non-banks, 29% with UK banks, and the remainder (36%) with other international banks from Europe, Asia and North America. An analysis of those lenders that are the most active sellers and buyers in the syndicated loan market is summarised in Figure 4.12. In essence, syndication allows insurers and other non-bank lenders to increase their exposure to a figure potentially approaching a third of the total market, while originating only 25% of CRE loans in the UK in 2015.

Figure 4.12: UK Syndication Origination versus Allocation/Placement, 2015



Source: Hans Vrensen Consulting Ltd., 2016

4. HISTORIC DEVELOPMENT OF DEBT CAPITAL SOURCES

Due to lack of data, questions regarding the scale of junior and mezzanine debt within the UK broader CRE lending market are not possible to address in a detailed fashion. As a generalisation, the size of the junior and mezzanine lending segment is believed to be small and expensively priced. In part, this may be due to the low yields on CRE investments, making higher costs junior debt non-accretive to many investors. In other words, junior debt at current margins is unlikely to enhance overall equity returns.

Summary Section 4

- With 40% of debt being originated by insurers and other non-bank lenders, as well as various bond issuances, the UK is the most diversely sourced CRE lending market in Europe, but still less so than the US.
- Covered bonds have proven a successful and efficient funding vehicle in use across Europe, giving German banks a dominant position in their domestic market.
- With 25% of all UK and 15% of all European CRE loans syndicated, this is a growing market that appears to have effectively replaced securitisation for the funding of larger loans among more lenders.
- In the UK, syndication appears to have increased the market share of insurers and other non-bank lenders, to an estimated 35% of CRE loans while originating 25% of CRE loan volumes in 2015.
- Senior unsecured corporate bond issuance (by REITs and private property companies) has more than doubled since 2010, further filling the gap left by much reduced CMBS issuance.
- Despite these structural changes in funding, banks remain the single biggest lender category in Europe (at over 68%), leaving it considerably less diversified than the US, where more than 40% of debt is originated by non-bank lenders.

5. RISK AND RETURN IN CRE LENDING

The aim of this section is to address the following questions:

- What is the typical risk/return appetite of the different sources of real estate debt?
- What risk-return opportunities does CRE debt offer to investors, especially relative to other fixed income and CRE equity investment opportunities?
- Are there parts of the market where different sources of capital are more or less competitive?
- How do different market participants price opportunities in the different segments?

A real estate lender is prepared to advance finance in order to achieve a satisfactory return on its capital, based on the timely payment of interest and principal. The lender cannot benefit from rental or capital value growth, as the equity investor does; its return is a function of loan pricing, typically quoted on a spread basis. The swap or cap will transform the borrower liability from a floating interest rate (say, three-month LIBOR or EURIBOR) to a margin plus the swap rate of a duration that matches or exceeds that of the loan. The risks to the lender are a borrower's failure to pay interest during the term and/or failure to pay the principal back, either during the term (scheduled amortisation) or on maturity of the loan. The lender can recover its principal (or part thereof) from the sale of the collateral building, however, if the borrower defaults.

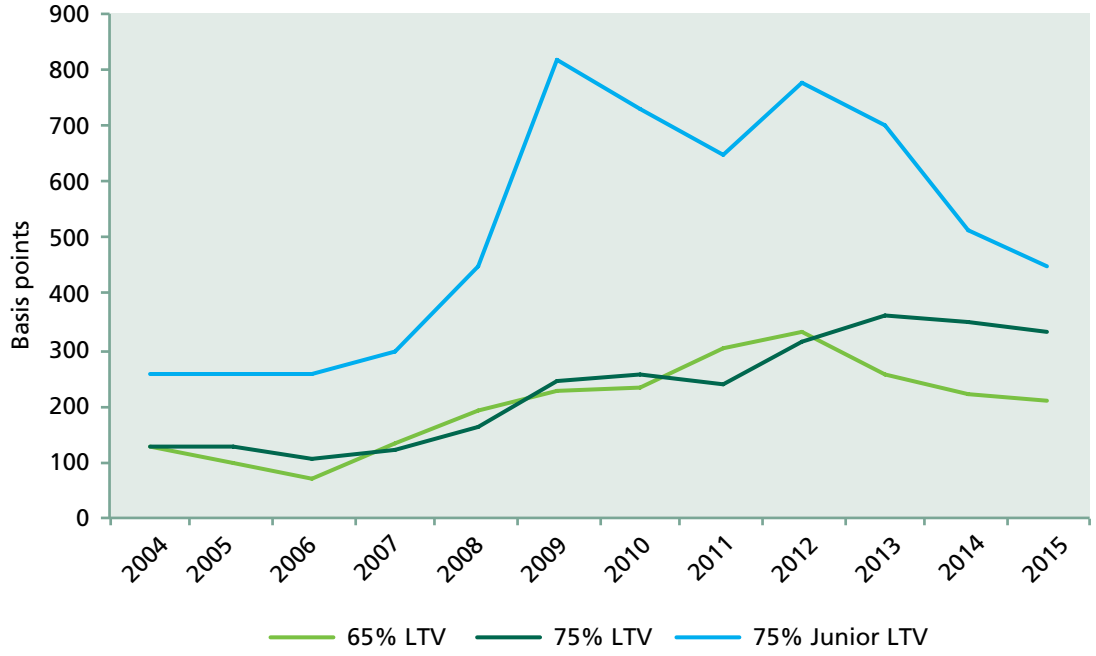
According to Geanakoplos (2014), the leverage cycle is no accident, but a repeating, self-reinforcing dynamic. After a long period of low volatility and unrestricted financial innovation, leverage will rise as lenders, less worried about the prospect of default, will loosen credit terms, which borrowers will take advantage of by leveraging more. For a period, this will result in increases in asset prices as investors are able to bid more intensely. In turn, this will deliver higher returns and more investors will be attracted to the market. At this stage the economy appears to be functioning benignly and prices are stable and high. Economic growth is high but approaching a turning point, because borrowing activity has been boosted twice: firstly, by an increase in lender LTVs (loan sizes can increase for the same collateral) and, secondly, because collateral values have increased. In the incidence of a declining lending market, the impact of relaxed credit terms can also have a multiplier effect, as lenders reduce LTV ratios this forces borrowers to re-finance at lower values. In summary, there is a separate cyclicality in the provision of credit, which is likely to amplify the well-recognised cyclicality in the commercial property investment market. These separate cycles can be highly correlated, but are driven by different factors. This section analyses the return expectations and risk preferences of lenders over time.

5. RISK AND RETURN IN CRE LENDING

5.1. Historic CRE Private Loan Pricing

The longest and most consistent time series available in Europe covers the UK lending market: UK loan pricing data for senior and junior loans has been recorded by the De Montfort University (DMU) survey since 2004.

Figure 5.1: Senior versus Junior Loan Pricing, 2004–2015



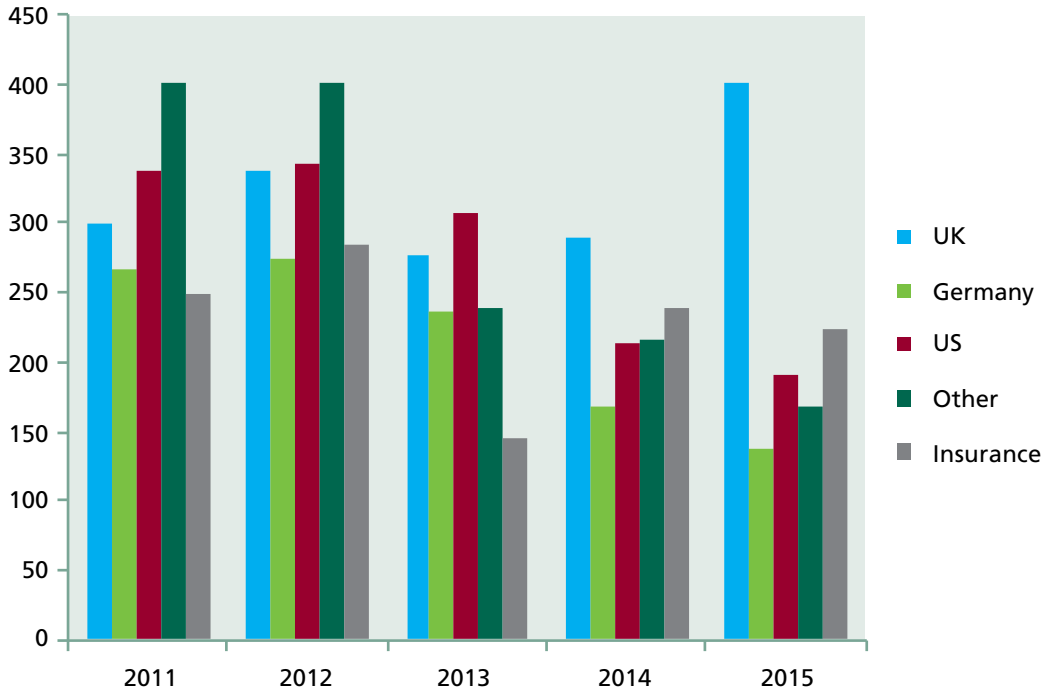
Source: De Montfort University, 2016

Figure 5.1 identifies the main trends over the period 2004 to 2015:

- Loan margins for junior loans of 65–75% LTV increased three-fold between 2006 to 2009 (to over 800 bps) and currently remain 200 bp above their 2006 record low of 250 bp;
- Loan margins for senior (whole) loans at 65% and 75% LTV maintained a very close relationship, although tripling from their record lows in 2006. Compared to junior pricing, both senior margins rose at a much slower rate to their record highs in 2012/2013; and
- From 2012 onwards, however, sub-65% LTV loans commanded much cheaper pricing than loans at 75% LTV due to bank models under UK slotting or other favouring sub 65% LTV loans and requiring less capital charges. Section 6 explores the links between this secular shift in UK CRE mortgage loan pricing with new regulatory treatment.

5. RISK AND RETURN IN CRE LENDING

Figure 5.2: Senior Loan Pricing by Lender Type, 2011–2015



Source: De Montfort University, 2016

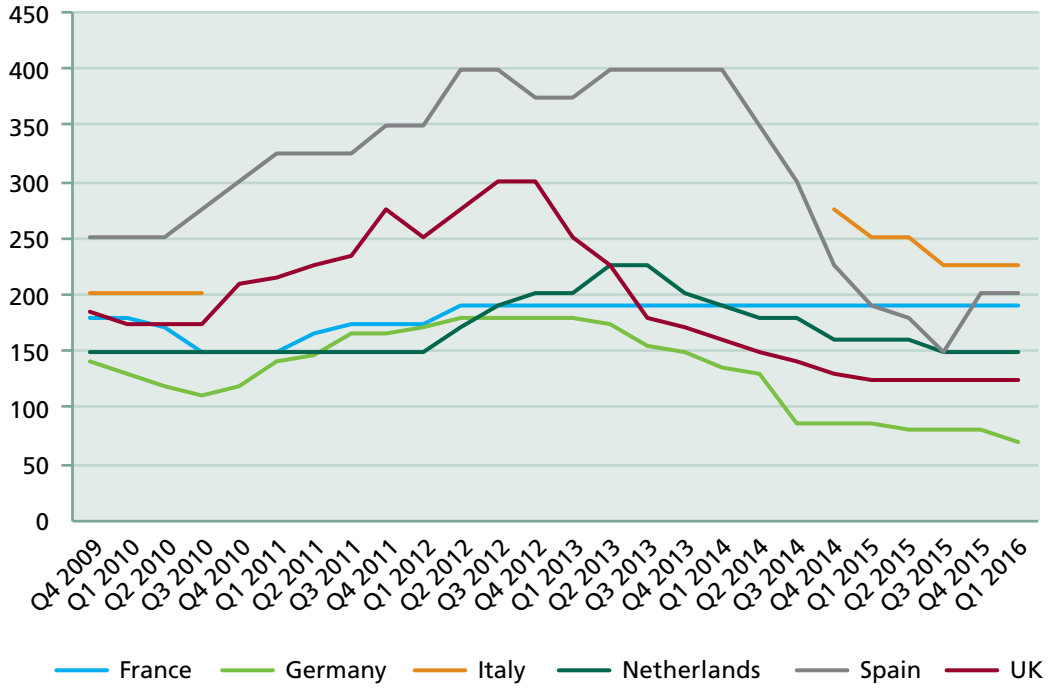
Figure 5.2 shows trends in loan pricing by different types of lender between 2011 and 2015:

- Margins fluctuated for each lender type from year to year, with no perceptible consistency or pattern.
- German banks offered the lowest margins in four of the five years reported, which appears to confirm earlier observations regarding the advantages German banks receive via the Pfandbrief.
- In 2011 and 2013, insurers offered the lowest margins on average.
- UK banks have achieved the highest margins over the last three years, potentially in response to new regulatory treatment.
- Expanding beyond the UK, to the rest of Europe, a number of similarities may be drawn (see Figure 5.3).
- Prolonged widening in margins between 2009 and 2012 related to short-term market uncertainties during this period. Since 2012, however, there has been a general tightening in margins across European markets, especially in Spain, where borrowers have encountered difficulties in obtaining finance, even at high prices. ECB monetary policies (namely quantitative easing (QE); see Section 6.5 for a full explanation) and improving liquidity, as well as fundamentals in the property investment markets may have influenced these changes in pricing.
- The lowest margin loans have been available in the German market for most of the period, primarily due to the efficiency of the German covered bond funding model.
- Despite UK banks being less competitive compared to other lenders, loan margins in the UK are at their lowest post the GFC. This may be explained by a combination of the re-entry into the UK market of US, European and Asian banks, an active syndication market and the emergence of non-bank lenders, all of whom have increased competitive pressure on margins.

5. RISK AND RETURN IN CRE LENDING

Average loan margins across all loans and lenders have declined steadily for the UK and rest of Europe– by more than 100 basis points, from 326 bps in the first half of 2014 to 224 bps in the first half of 2016. In part, this may reflect lower LTVs, as lenders require lower margins for lower risk lending, although this also coincides with the period QE impacted on overall fixed income yields. Without more granular loan data, however, to give more detailed analyses of loan types, their risks and pricings, the impact of QE cannot be isolated.

Figure 5.3: European Loan Pricing, Q4 2009–Q1 2016



Source: CBRE, 2016

Separate data from the CBRE loan-by-loan database suggests that average LTV ratios peaked in the second half of 2015, at 64%, reducing to 55% in the first half of 2016. Among lender types, US investment bank loans showed the highest average LTV over the period (at 67%) with insurer loans the lowest, at 52%. In addition refinancing is a more important trigger of loan origination than investment acquisitions.

5.2 Historic CRE Loan Default and Loss Performance

This section compares historic loan defaults and loss performance between different debt sources and types of lenders.

5.2.1 CMBS

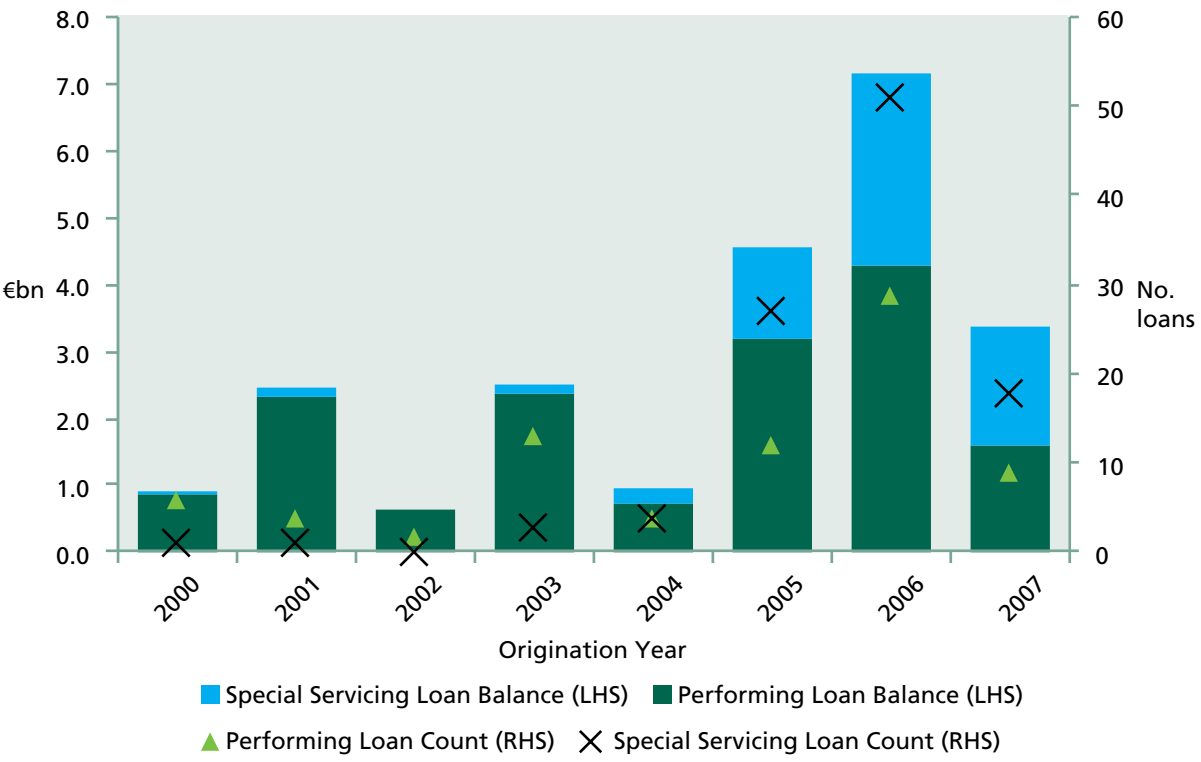
There are no complete and comparable statistics of actual loan losses for CMBS in Europe and the US. In 2016, the cumulative default rate stood at nearly 13% of the 1062 CMBS-funded loans originated between 2000 and 2013 (Trepp, 2016), an increase from nearly 11% in 2015. In addition, the report estimated the weighted average loss severity to be static, at 21%. More defaults and losses are likely to materialise in future, particularly for loans in special servicing.

5. RISK AND RETURN IN CRE LENDING

Origination year has been a key indicator for loan performance (loan vintage). European mortgage loans originated in 2007 have a default rate of just below 25% – nearly twice the overall average and their loss severity was near 25%. A majority of loans were originated during the period 2006-2007, when commercial property values peaked. This period coincided with banks being able to lend at very high LTV levels and low margins, based on very efficient CMBS funding backed by a fixed income investor base looking for yield; i.e. this loan vintage coincided with aggressive values and aggressively structured and sized loans. Average deal size typically creeps up near the peak of cycles, partly due to increased values, and also, as investors are more keen to deploy larger amounts of capital. The combined effect created at the peak of the cycle can be called the vintage effect, which can be seen to be manifested in the CMBS default and loss data.

Losses on remaining CMBS are expected to further increase, however. According to Trepp, at the end of 2015, €22 billion (held in 184 loans) of CMBS originated between 2000-2007 were still outstanding, of which €6.5 billion (held in 96 loans) were (still) in special servicing. Overall, more than half of all loans outstanding at the end of 2015 were in special servicing. Considering that loans in special servicing are in default or breach of covenants their value serves as a proxy for future losses. This confirms the BAML expectation of further defaults and losses on the outstanding loans. From Figure 5.4, it may be seen that the largest share of special serviced loans is in the 2006 vintage, followed by 2007 and 2005.

Figure 5.4 : European CMBS Outstanding by Vintage (Year-end 2015)



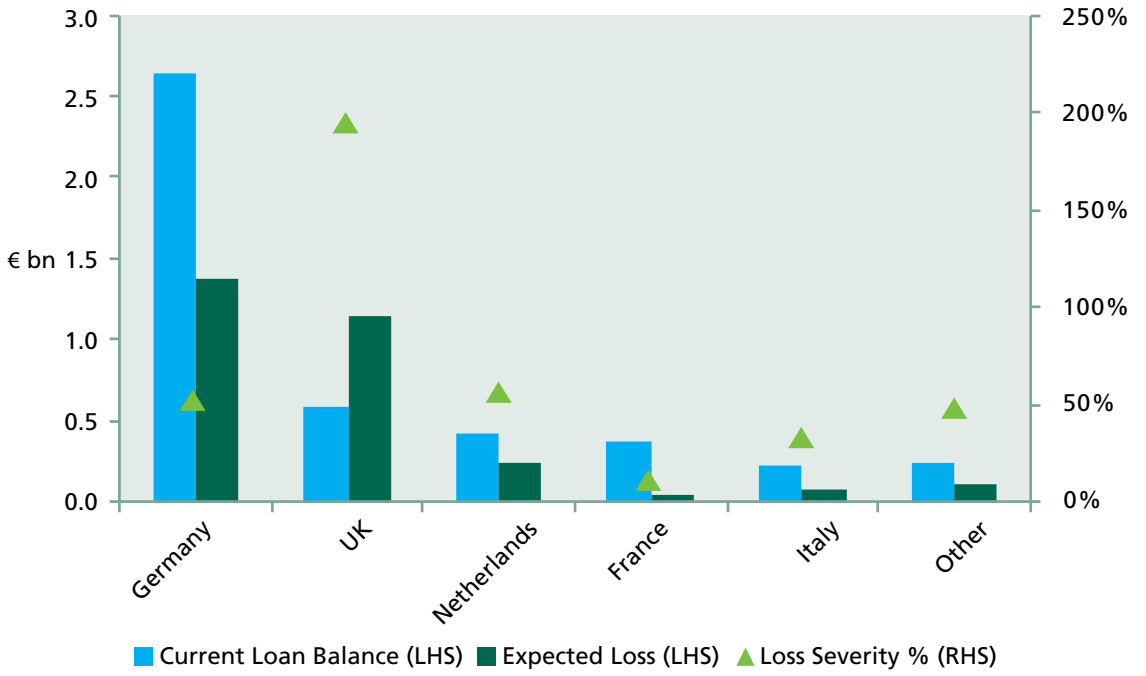
Source: Trepp LLC, 2016

5. RISK AND RETURN IN CRE LENDING

Figure 5.5 illustrates that loss severity varies by country, being above 50% in Germany and the Netherlands, but only 11% in France. The big outlier is the UK, with impairments of up to two times the loan balance, triggered by large legal costs. These losses may not be realised, however, as historic data shows that only 30% of loans experience an actual loss after sale of the asset. Overall, as seen in the BAML data, vintage plays a significant role in the amount of losses expected on a loan, with those originated in 2006 recording the highest anticipated losses.

The actual loss on defaulted CMBS loans after workout and asset sale at the end of 2015 show that, on average, 35% of outstanding debt could not be recovered (Moody's Investor Service, 2015). It is important to note, however, that not all CMBS loans defaulted.

Figure 5.5: European CMBS Loss Severity by Country

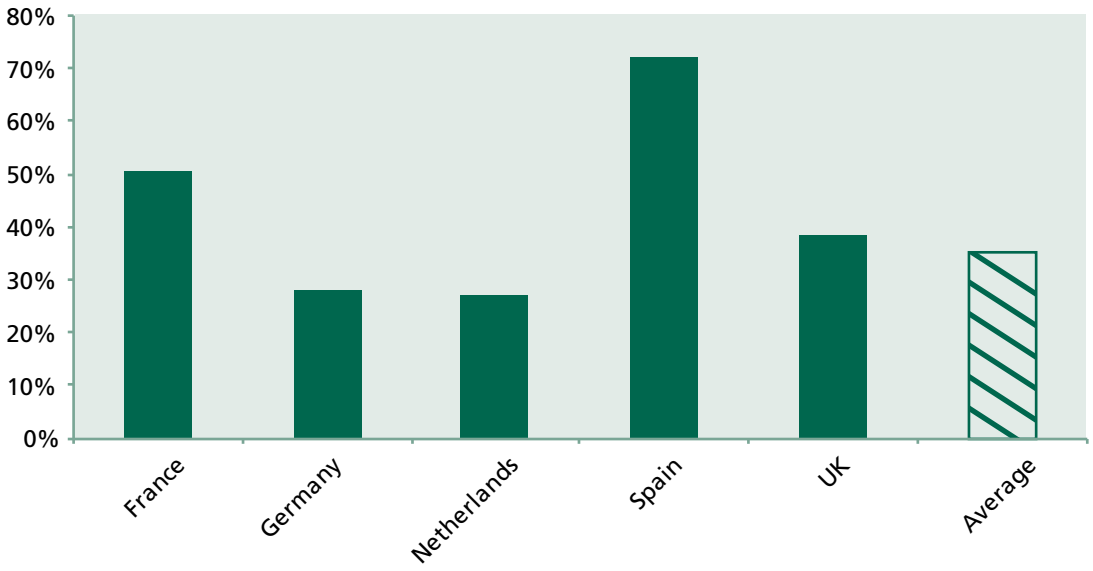


Source: BAML, 2016

That this 35% is significantly higher than the 21% reported by BAML may be a reflection of Moody's rated deals versus the overall market. However, Moody's data shows similar jurisdictional differences in loss severity as BAML, such as Spain's 72% average loss. Given the small number of CMBS loans with assets in Spain and France, however, this average is unlikely to be representative for the entire market.

5. RISK AND RETURN IN CRE LENDING

Figure 5.6: European CMBS Actual Average Loss by Country



Source: Moody's Investors Service Inc., 2016

Given that there is no data on CRE loan losses suffered by banks, Table 5.1 presents an alternative estimate using, amongst others, data from Evercore's September 2016 European Distressed Real Estate Market report. This presents data on both loan portfolio sales and bank write-down.

Table 5.1: Estimated Cumulative Bank CRE Loan Losses and Write-downs in Europe, 2011–H1, 2016

Step	Analytical Step	Europe	
1	Est. CRE loan sales by banks in 2012 to 1H 2016	€150 bn	
2	Est. range of discounts on CRE loan sales	15%–90%	
3	Assumed average discount of CRE loan sales	50%	
4	**Calculated banks' CRE loan losses (= 1 x 3)**	**€75 bn**	
5	Est. gross non-core CRE loans on banks' balance sheets	€208 bn	
6	Est. net non-core CRE loans on banks' balance sheets	€94 bn	
7	Implied write downs (= 1 - (5 ÷ 6))	55%	
8	**Calculated write downs on banks' non-core CRE loans**	**€114 bn**	
9	Cumulative banks' CRE loan losses & write downs (= 4 + 8)	€189 bn	
10	Outstanding bank CRE loans (year-end 2011)	€1.5–2.0 tn	£212 bn
11	**Cumulative loss % over last five years (= 9 ÷ 10)**	**9.5%–12.5%**	

Sources: Hans Vrensen Consulting Ltd., Evercore, Bank of England and Cushman & Wakefield (DTZ)

5. RISK AND RETURN IN CRE LENDING

Evercore estimates CRE loan sales by banks in Europe at €150 billion over the 2012–2016 period, making up approximately 60% of the current cumulative loan portfolio sales by banks, of €250 billion. Typically, discounts have not been disclosed but are estimated by Evercore to range between 15% and 90% of the original gross loan balance before any write downs. Assuming an average 50% discount on sales, as a mid-point of the range from Evercore data, the authors estimate bank losses on CRE loan sales to mid-2016 have been €75 billion.

Write-downs on the remaining non-core CRE loans held on bank balance sheet are estimated at €114 billion, based on Evercore's €208 billion in gross CRE loans minus a net €94 billion of CRE loans remaining on bank balance sheets. This €114 billion estimate in write downs is equal to a 55% discount to gross loan amounts, reassuringly similar to the authors' assumed average 50% discount on the CRE loan sales.

In combination, the authors estimate bank losses of €75 billion and write downs of €114 billion on European CRE loans over the last five years. In the context of C&W's estimated total €2 trillion of outstanding bank debt in Europe at year-end 2011, before these losses and write downs were taken, this implies that, over the last five years, banks have taken a cumulative 9.5% loss (and write-down) on their European CRE loans. Adjusted to exclude jurisdictions that are omitted from the Evercore data, such as the Nordics and CEE, a reduced denominator of €1.5 trillion implies a 12.7% loss. A range of 10–13% cumulative losses on European CRE bank loans over the last five years does seem reasonable.

Focusing on the UK, Evercore estimate that banks sold £37 billion in CRE loans in the 2012–2016 period. Assuming a similar discount of 50% as indicated for Table 5.2, as applicable to non-UK banks, this would have triggered a £18.5 billion loss. The Bank of England reports that UK banks have taken £18.6 billion cumulative write downs on loans to non-financial corporates investing in CRE over the period 2008-2015. This gives a combined estimate of £37 billion of CRE loan-related loss and write-down by UK banks to date. Given that the majority of UK CRE lending is undertaken by non-UK lenders, the Bank of England figures are unlikely to cover all write downs on CRE loans secured by UK property. Future losses and write-downs can be expected from loans originated prior to the GFC that remain outstanding. When applied to the De Montfort report of outstanding UK and overseas bank CRE loan balances at year-end 2011, of £212 billion, this produces a 17.5% cumulative loss over the seven-year period 2008–2015.

This implies that losses on CRE bank loans are three to four times higher than the estimated actual losses on CMBS-funded CRE loans, which at a 13% default rate and a loss severity of 21% show a loss percentage of 2.7%. Again, this excludes potential future losses from CMBS-funded CRE loans already in special servicing. Possible reasons for this wide difference in losses between banks and securitised loans include:

- The use of loans only secured by specific asset types in CMBS issuance, i.e. excluding development financing, and with only limited amounts of highly specialised assets or operating assets; and
- Typical borrower types in CMBS deals are multi-national investment managers of higher quality than the individual high net worth and/or regional borrowers that are served by regular bank lending.

5. RISK AND RETURN IN CRE LENDING

Table 5.2: Comparison of Defaults and Loss Rates for European Securitised and Bank Loans

	European CMBS Loans 2009–2015	European CRE Bank Loans loans 2012–2016	UK CRE Bank Loans 2008–2015
Default Rate	13%	NA	NA
Loss Severity	21%	NA	NA
Loss Percentage	2.7%	9.5–12.5%	8.8%

Sources: Authors' own calculations, Evercore, Cushman & Wakefield, Trepp LLC, Bank of England

It should be noted, however, that there is no public data available for UK or other European CRE bank loan performance disclosed by commercial and central banks. One could speculate that the large volume of non-performing CRE loan (NPL) portfolio sales is an indication that non-CMBS loan defaults and losses were possibly worse than those reported in CMBS, which the authors' own estimates appear to support. Better data would allow a broader market verification of this point.

5.3 Relative Risk and Return across Four CRE Quadrants

Previous sections identified both pricing and risk for UK and European CRE loans. In fact, the defaults and losses look unattractive. A near 25% chance of default and 25% loss leaves lenders with an average expected loss of over 6% for 2006–2008 vintage loans. To be compensated for this on a five-year loan, lenders would need to be paid an extra spread of about 100–120 bps pa alone. As lenders withdrew from making high LTV loans, tripled spreads attracted debt funds and others into the (mezzanine and junior) lending market. Many of these fund managers were previously active in their original quadrant of private equity. In some cases, they also invest in REITs (public equity) and fixed income products like CMBS bonds.

Increasingly, in the real world, investors and lenders consider CRE debt as one of many debt investments a lender or investor can make. The decision to lend against CRE or other assets is therefore a relative one. However, a real estate mortgage loan is a non-standardised product and difficult to trade or sell to non-institutional investors by the original lender. Similar to investments in other asset classes, real estate returns differ widely over time and by country. Generally, they show lower volatility than national equity markets and higher returns than national government bond markets. The longest data series available are in the US and serve generally as a proxy to demonstrate the relative relationship between the different types of investments.

Table 5.3: US Returns, 1997–2011

	Quadrant	Average Return	StDev	Sharpe Ratio
NCREIF (all prop)	Private Equity	9.9%	9.3%	0.76
Equity REIT	Public Equity	11.3%	21.3%	0.40
GLCMPI	Private Debt	7.5%	5.2%	0.91
Mortgage REIT	Public Debt	7.3%	33.5%	0.13
All CMBS	Public Debt	8.0%	13.2%	0.39
CMBS AAA	Public Debt	7.4%	12.3%	0.37
CMBS BBB	Public Debt	6.6%	24.9%	0.15

Source: Cass Business School, Professor Tony Key, 2014

5. RISK AND RETURN IN CRE LENDING

Table 5.3 shows that private debt (as represented by the Giliberto Levy mortgage index (GLMPI)) has a very good risk-adjusted return with the highest Sharpe ratio of any of the categories of 0.91. Most other segments achieved higher average returns, but at the cost of much higher volatility. It is worth considering the breadth and depth of the investor base supporting each segment. Highly leveraged mortgage REITs are not covered by many of the mainstream REIT analysts and have a relatively small investor base. This might explain their high volatility over the period. The well-diversified US CRE mortgage market, with its active CMBS and syndication market, has a much broader investor base, which includes a large number of fixed income investors, insurers and regional banks. As a result, the return volatility is almost half that of the next lowest quadrant. In short, relative to other real estate quadrants, private CRE debt showed the most attractive risk-return profile over the 14-year period (2011–2015).

Table 5.4 presents an analysis using a different methodology to estimate net total returns achieved by real estate loans. These net returns have been calculated by CBRE Debt Analytics, using their database of thousands of actual individual properties. In an ideal world, there would be a public database of actual loans whose returns could be assessed, but this does not exist. The CBRE Debt Analytics approach is to produce the next best thing, which is a combination of a huge dataset of individual assets onto which can be overlain loans of any nature. Thus, it is possible to estimate how a portfolio of thousands of loans made at any combination of LTV, margin and arrangement fee would have performed. In this case, the authors have tested for 65% LTV and 75% LTV loans, with a margin and arrangement fee series derived from the De Montfort University dataset. The methodology assumes that where a loan matures with an end asset value producing an LTV of above 100%, the lender incurs a loss, recovering only 85% of the end asset value. The impact of any losses incurred by lenders is illustrated in Table 5.4 (UK Returns). It should be noted that this is a conservative methodology that is likely, if anything, to overstate losses, as it does not allow for any workout strategies that the lender might enter into to reduce loss in the event of a default. Rather than, say, assuming that the lender might hold the asset until markets have recovered (thus, potentially, incurring no loss at all), it assumes all positions are crystallised at loan maturity. This is a necessary step, given the lack of a resource showing actual loan performance at the granular level over time.

Table 5.4: UK Returns (1999–2015)

	Quadrant	Average Return	StDev	Sharpe Ratio
10 yr UK gilts	Public debt	5.2%	1.4%	3.8
CRE debt (gross margin) 65% LTV	Private debt	5.6%	1.1%	4.5
CRE debt (gross margin) 75% LTV	Private debt	5.8%	0.9%	5.4
CRE debt (net return) 65% LTV	Private debt	5.3%	1.1%	3.9
CRE debt (net return) 75% LTV	Private debt	4.5%	2.5%	1.4
IPD UK	Private equity	8.5%	10.1%	0.8
Corporate Bonds	Public debt	6.2%	1.9%	2.8
FTSE 100	Public equity	6.8%	6.9%	0.8

Source: CBRE Debt Analytics, MSCI, Bloomberg

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Despite the significant defaults and losses suffered by CMBS investors and balance sheet lenders since the GFC, loans have offered attractive risk adjusted returns relative to other mainstream and CRE investment segments across the four quadrants. This is despite the significant defaults and losses suffered by CMBS investors and balance sheet lenders since the GFC.

5.4 Current Lender Risk and Return Expectations

After the review of historical trends this section discusses loan pricing approaches of different lender types. Return expectations are generally a function of lenders and the assessment of the specific investment risk. Given the widening variety of lenders in the market there is an emerging segmentation between different lender categories and loan pricing. Each lender type is driven by their return requirement and their risk appetite. Return expectations are driven by each lender's cost of capital (or funding). The cost of capital in turn is driven by various risk components. As an example, UK balance sheet banks' cost of capital is driven by the following variables presented in Table 5.5. However, these variables are sensitive to interest rates, credit spreads and liquidity markets and have to be reviewed continuously. For example, by August 2008 the price of market liquidity was significantly higher, as well as CDS of banks stood at much higher levels than before the GFC.

Table 5.5: Analysis of UK Bank Senior CRE Loan Pricing (July 2016)

Type of Risk	Driver	Indicator	Margin
Liquidity	Market liquidity	Overnight rate	0.0%
Credit	Bank credit rating/external borrowing	Credit default swap	0.25%
Credit	Risk weighted assets (RWA) allocation/internal credit rating	Credit spreads	0.5%
Five-year Swap Rate	Set by market		1.0%
All-in Interest Rate			1.75%

Note: assumptions based on 2016 pricing.

Considering the components in Table 5.5, loan pricing has to meet a return on equity hurdle rate reflecting the total net income margin earned over the weighted average cost of capital (WACC). Pension funds are more driven to select their investments based on long-term cash flow stability due to asset liability matching requirements, whereas insurers are looking for yield, i.e. absolute return. While banks are impacted by high capital charges based on Basel, which is discussed further in Section 6, insurers and pension funds also have to allocate some additional capital to the types of assets they are holding.

The other component of loan margin is the perceived risk. Higher risk demands a higher margin compensation. Five different risk lending strategies can be mapped to different market players in the current European CRE lending market. Senior debt achieving the lowest returns and whole loans with view of syndication at a later point are typically offered by banks and some insurance companies. On the other hand, debt funds are not limited in the strategy and type of debt they offer. However, as competition is higher in

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senior debt, they mostly opt for strategies not offered by banks. Any discussion on CRE lending since 2008 also has to include an overview of the different lender types. Table 5.6 provides more insight into the types of lenders and their lending models.

Table 5.6: Lender Segmentation

Type of lender	Prime Business Driver	Own Loan Sourcing Y/N	Syndic. Exit Y/N	Loan Type	LTV	Gross IRR Target	Typical Loan Size (€)
Pension fund	Asset-Liability matching	Some	No	Senior Whole loan	0–60%	4–6%	50–100m
Insurance company	Asset-Liability matching	Most	No	Senior/ Whole loan	0–60%	4–6%	50–100m
UK bank commercial	For profit on balance sheet	Most	Some	Senior	0–60%	4–6%	20–150m
German/ French bank	For profit on balance sheet	Some	Some	Senior & Whole loan	0–60/75%	4–8%	20–150m
US investment bank	Originate & Distribute	Yes	Yes	Whole loan	0–75%	6–8%	>100m
Debt Fund	Profit for investors	Most	No	Stretched Senior Junior/Mezz	0–80% 60–70% 70–80%	8–10% 8–12% 12–15%	20–100m
Opportunity Fund	Profit for investors	Most	No	Stretched Senior Junior/PIK	0–80% 50–100%	8–10% 15–20%	50–100m

Source: Authors' own

Banks as a combined group have been most impacted to regulatory changes to date and their internal funding models and costs had to be adjusted to remain profitable. Their main goal is to minimise risk

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weighted assets and funding costs by selecting high quality assets for their lending, mostly restricted to 65% LTV, paying more attention to borrower track record, control through covenants and robust documentation. Depending on overall size, bank preference is to to focus on large loans.

Insurance companies have a wide spectrum of options for different types of real estate exposure across different risks and return requirements. As part of their private credit strategy they can allocate fixed income exposure to alternative asset classes such as real estate debt, however they can also use the indirect route of investing through a debt fund. Under European law, insurers and reinsurers must establish technical provisions to cover future claims from policyholder. Solvency II currently provides that insurance firms must meet both a Minimum Capital Requirement and a Solvency Capital Requirement. In assessing the value of assets for solvency purposes, insurance firms may either adopt the "standard formula" under which a regulatory charge is set by the European Insurance and Occupational Pensions Authority (EIPOA). Alternatively they can use an internal model approved by their national regulator. Solvency II currently does not affect all pension schemes but discussions regarding the appropriateness for all defined benefit pension schemes are ongoing. Those not yet affected usually price real estate loans based on adding an appropriate illiquidity premium to similar credit-rated and maturity traded credit instruments, like corporate bonds. Their internal ratings are expected loss based, so take away the difference between unsecured corporate bonds and secured CRE loans (i.e. recovery from collateral value). In contrast, the regulatory approaches focus on the valuation of assets on terms of actual market price, hence take more market price volatility into account. Solvency II is discussed more fully in Section 6.

Insurance companies and pension funds assess their overall portfolio by reference to the type of products they offer and requirements for asset liability matching, hence they can investment in real estate debt within their portfolio, including private markets, special situations, illiquid debt strategies and real estate over the entire spectrum of three to 25 years. Those who have established larger origination teams and take on third party mandates can also be more flexible in the risk appetite.

Pension funds focus even more on liability matching and looking for yield enhancement. While real estate as a sector always had its place within pension funds, allocations to the sector overall are expected to stay within historic average ranges of 8–10%, as mentioned previously, pension funds have a wide spectrum of investment strategies and can shift allocations, especially between equity and debt exposures. Pension fund return expectations are as follows:

- senior debt at LTV < 60%: returns targeted at five-year swap plus 250 bps, or over the corporate bond yield;
- whole loans at LTV <80%: net IRR targeted at 7–9%; and
- mezzanine/junior loans at LTV 60–80%: net IRR of 10–11%.

Funds can cover a large spectrum with different return profiles depending on their investor base. They rely on investors committing capital. Typically, as funds pursue more specialised strategies on an individual basis, they are less diversified. In the future it is assumed that there will be an amount of consolidation in the sector as only larger platforms have the necessary economies of scale in the longer term. The challenges for funds are to create a pipeline of investors, build up a conduit if deals and develop expertise across sectors. Overall, CRE

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lending is capital and resource intensive.

Whilst Table 5.6 identifies the typical loan type written by the relevant lender group, most of these will also have small allocations for junior and mezzanine loans.

Summary Section 5

- When considering the evidence on risk and return for CRE lending, the authors considered margin and loss data. UK data shows that low LTV CRE loan margins have declined from their 2012 peak, while margins for higher LTV and junior loans remain high.
- German lenders have been able to offer the lowest loan margins for four of the last five years in the UK market. CBRE data shows that UK loan margins are at record lows since 2009 and the second lowest in Europe, only behind Germany, driven by low cost covered bond funding
- The authors estimate securitisation-funded cumulative CRE loan losses of below 3%. This compares favourably to their estimate for UK banks at 17.5% and Europe at between 9.5% and 12.5%.
- Despite these losses, comparison shows that on a risk adjusted basis CRE lending offers good relative value against other CRE opportunities, increasingly attracting multi asset investors. For low LTV UK CRE loans, the Sharpe ratio is three times the IPD All Property index level.
- Lender motivation, business model and structure lead to certain segmentation across the risk-return spectrum as well as loan type and size. Pension funds have a broader range of risk-return strategies in real estate lending. This means they are in a position to also fund higher risk/higher margin loans. This is different from insurers, which are more restricted to lower risk/lower margin loans. In large part, this is driven by regulatory requirements (discussed in Section 6).

6. REGULATORY IMPACT ON CRE LENDING

This section considers the following questions:

- What has been the role of financial regulation in shaping market structure and directing debt capital providers into particular products or structures?
- What are the challenges faced in the area of data availability, especially for investors and regulators?
- What is the likely future direction of regulation and how does this differ across national/regional jurisdictions?
- Is there any evidence of regulatory arbitrage?
- What are the implications of long-term low interest rates versus rising interest rates and a reversal of quantitative easing on the market?

Following the GFC, a myriad of regulatory changes has been observed from a wide range of existing and newly-established global, international, national and sector-specific regulators. This historically unprecedented wave of new regulations has not been directly triggered by any events in the CRE sector but, by necessity, has focussed on reducing the immediate risks posed by the potential of further bank failures on global economic and political stability. Many of these new rule changes have already been implemented while others are still in the proposal stage. Based on this recent shift towards more pro-active and hands-on regulation, some commentators have made the point that perhaps in addition to a property and credit cycle, there is also a regulatory cycle. The counterpoint could be made that new regulations are secured for the long term and counter-cyclical (i.e. banks reserve more capital when property and credit market cycles are positive). Regardless of whether cyclical or secular, the local and sector-specific impacts of these new regulatory changes are likely to vary significantly, depending on each national regulators' interpretation and implementation.

The analysis within this section of the report is limited to the most important regulations that impact on CRE directly, in particular those affecting lenders active in this sector. A full description of each of the regulations falls outside the scope of this research; rather, the premise explored is whether these regulatory changes in themselves have led to advantages and disadvantages for different lenders, especially when operating outside their national markets. The potential impact on changing levels of competition domestics banks might face in their national markets is also considered, data permitting.

6.1 Overview of CRE-relevant Regulatory Frameworks

Table 6.1 provides an overview of the most relevant regulations.

Table 6.1: Principal Bank and Tax Regulations/Proposals

Lender/Borrower Type	Regulation	Regulator
Bank	Basel III & IV	BIS, BCBS, PRA
Insurer	Solvency II	EIOPA, EC
Debt/Pension Fund	AIFMD	EC
Bond Investor	CMU (STS) & Solvency II	ESMA, EC
Private Equity Fund	AIFMD & BEPS	EC, OECD

Note: See Appendix A for explanation of acronyms.

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It should be noted that no single set of regulations or regulators cover all CRE lenders. Regulatory perspective has focused historically more on the type of institution and relevance to the overall economy. Coordination of regulators impacting different industry sectors, such as CRE, has been limited, if not non-existent, so far. This is likely to result in a number of inconsistencies in the treatment of different lenders even if taking the exact same credit risk, as in a syndicated loan for example.. Regulatory differences also occur across Europe as global regulation is interpreted and implemented differently into national law.

Borrowers are also are impacted by new regulations, such as AIFMD (the Alternative Investment Fund Managers Directive 2011/61/EU), which has increased the required focus on reporting and compliance, while BEPS might oblige some creatively structured funds to re-design their corporate structure and accept a higher tax burden.

6.2. The Basel Banking Regulations

Since banks remain the largest lender type to CRE, some explanation of the most important bank regulations – known as the Basel framework – are required. The main objective of the framework is to keep the financial system, banks in particular, safe for depositors and protect against tax payer-funded bail outs. Since banks are highly leveraged institutions, an important further requirement is to protect banks' debt holders against peak losses that exceed expected loss levels – the so-called unexpected loss (UL). Basel I (1988) established the basic architecture for setting minimum risk-based capital requirements for banks. The Basel Capital Adequacy Agreement imposes weightings for different types of risk, requiring banks in countries subscribing to the agreement to maintain a minimum required ratio of 8% qualifying capital to risk-weighted assets (RWA). RWA are calculated by multiplying the asset value by a 'risk weight'. These rules have evolved from Basel I in 1988, through Basel II (2004) to Basel III (2010–2011), growing ever more stringent in terms of the minimum ratios banks are required to maintain for different types of risk.

The Basel framework allows banks three different approaches to assessing their capital adequacy requirements: standardised, foundation internal rating-based (IRB) and advanced IRB (A-IRB). Banks using the IRB approaches are required to determine borrowers' probabilities of default (PD) while those using the advanced IRB approach are also allowed to estimate their loss given default (LGD) and exposure at default (EAD) metrics on an exposure-by-exposure basis. Banks have expended significant time and incurred significant costs to develop these methodologies, mobilising their historical loan performance data to validate models, the incentive being that, in most cases, these have resulted in lower RWA than in the standardised approach. Some banks applied these models during the run-up to the GFC, which might explain why they have not been accepted by all central banks.

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Table 6.2: Regulatory Treatment of CRE Loans in the UK

Approach	Summary	Mostly Applied by
Standardised	• Simple approach; currently reviewed by BCBS • Regulatory RW% applied to exposure • RW% for CRE loans = 100%	US banks
Slotting	• 'Expert judgement' approach • Determine slotting grade of asset then look up • 70–250% RW% depending on grade for > 2.5yrs exposures; 50–250% < 2.5 yrs	UK banks
Foundation IRB	• Sophisticated approach • Bank sets PD; LGD at 45% and EAD set by regulator • ~60–80% RW%	US & Other International banks
Advanced IRB	• Most sophisticated approach • Bank determines PD, LGD and EAD • ~40–60% RW%	German banks

One difference between the approaches is who calculates the inputs required, as identified in Table 6.2. The standardised approach is a simple lookup table that slots assets into categories according to their risk. Whenever a bank proceeds to use a higher order approach, it cannot revert to the lower order approach (see Appendix B for more details on the Basel rules).

The majority of German banks have adopted the A-IRB approach, which allows them to estimate their own PDs and LGDs, leading to substantially lower RWAs. Many US and other international banks use either the standardised or the foundation IRB approach, partly driven by their domestic regulators. As a result, they typically face average RWA.

Proposals pending from the Bank for International Settlement (BIS), which could result in the next generation of rules (Basel IV) being implemented, focus on limiting the use of IRB approach for CRE loan exposures. Feedback from Radley & Associates implies that, if implemented, these may be seen as a return to simplified rules and are likely to limit bank interest in refining their risk modelling and may halt much needed investment in data and analytical technology. The criticism that slotting is not an appropriate model for heterogeneous, collateral-backed CRE loans mostly affected by market risk seems appropriate. In particular, slotting forces banks up the risk curve, as it does not give a more favourable capital reserve treatment for low risk lending, such as for 30–50% LTV loans. However, the political pressure on regulators to push ahead with new rules is great and rational business arguments might not be sufficient to stop the progress of these proposals.

The UK bank regulator, the Prudential Regulation Authority (PRA), has already mandated UK banks apply a simple slotting approach, as illustrated in Table 6.2. This allows only minimum flexibility to determine PDs. It is up to each bank how to estimate PD and classify each loan into the five risk categories per different maturity category. Some have argued that slotting could promote higher risk lending to an already overpriced and more volatile prime London office market, which is more easily categorised as 'strong' and, at the same time, could penalise higher yielding regional properties.

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Table 6.3: Slotting Criteria for Specialised UK CRE Lending

Year (RWA)	Strong	Good	Satisfactory	Weak	Default
<2.5yr	50%	70%	115%	250%	0%
>2.5yr	70%	90%	115%	250%	0%

Year (EL)	Strong	Good	Satisfactory	Weak	Default
<2.5yr	0.4%	0.8%	2.8%	8.0%	50.0%
>2.5yr	0.4%	0.8%	2.8%	8.0%	50.0%

Source: Bank of England

Current banking regulations still permit non-UK banks to apply three different approaches to measure their regulatory capital requirements. The most advanced approach results in typically low risk weightings. UK banks are locked into the slotting approach by their local regulator, however, with a wider range of possible risk weighted outcomes. All else being equal, a lower risk weight allows a bank to offer borrowers a lower margin, which is why lenders have been so focused on these rules as they continue to evolve.

Under the new proposed RWA of Basel IV there are only three slots depending on LTV ratios only <60% LTV = 75% RWA, 60–75% LTV = 100% and >75% LTV = 120%. This would mean capital relief for UK banks, which currently suffer the highest risk weightings, of up to 250%, and would result in them being more or less neutral with US banks that now apply 100% risk weightings to their entire CRE loan portfolios.

6.3. Solvency II and Other Regulations

Solvency II regulation applies to insurers and, similar to the Basel regulations for banks, is structured into three pillars:

- Pillar 1 covers the capability of an insurer to demonstrate it has adequate financial resources in place to meet all its liabilities, including the estimation of the amount of capital an insurer should hold if it had to pay for an immediate transfer of its obligations to a third party.
- Pillar 2 sets out requirements for the governance and risk management framework that identify and measure the risk against which capital must be held as well as for the effective supervision of insurers.
- Pillar 3 focuses on disclosure, reporting and transparency requirements around these risks and capital requirements.

One of the key differences between the Basel and Solvency regulations is that, under Solvency II, insurers may develop their own risk models for which they have to seek individual approval. The Solvency Capital Requirement (SCR) is a risk-responsive capital measure, calibrated to ensure each insurer will be able to meet its obligations over the next 12 months within a probability of 99.5%. If an insurer´s risk capital falls below the Minimum Capital Requirement (MCR), it will be prohibited from writing any further business. In contrast to insurance risks, many of the financial risks assumed by banks are short-term, with a limited pooling effect.

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Insurer liabilities are illiquid, cannot be called at short notice and, only then at a significant cost to policyholders and involving a cancellation period. Claims on insurers are thus largely independent of the economic cycle but depend on the statistical distribution of their underlying risks. Conversely, bank liabilities are traditionally depos-based, which may be a mix of transactions, savings, and time deposit accounts. These deposits are inherently liquid and therefore at risk of being called at any time or on short notice. Depending on circumstances, liquidity problems can spread contagiously among large interconnected institutions. Whilst insurers invest in banks and are thus affected by bank runs , market expectation of runs on insurance companies do not arise as insurer liabilities tend to be long-dated with restrictions on how and when these can be redeemed. An insurer would typically be expected to become insolvent (as a result, for example, of a shortfall in the value of its assets) long before it becomes illiquid. Bank failures occur much more quickly than insurers and have the characteristics of being more disorderly. For this reason, bank regulators place particular emphasis on bank liquidity, both in 'business as usual' and in stressed conditions. However, insurance failures differ fundamentally from those of banks with respect to the causes, time horizons, scope of mitigating actions and potential system-wide consequences.

Overall, the Solvency formula gives preference, in terms of lower capital charges, to less volatile assets, i.e. where market prices vary less and assets have lower spread risk (volatility). This means volatile asset classes, such as equities and real estate, could lose their attractiveness and fixed-income assets could become much more attractive. For example, holding direct real estate, with its higher volatility, requires insurers and pension funds to apply stress testing to real estate values, resulting in an average capital charge for holding direct real estate of 39–49%. In comparison, capital charges for real estate debt are 11–23% for loans up to 75% LTV.

Debt funds are amongst other new regulation impacted by The Alternative Investment Fund Managers Directive 2011/61/EU (AIFMD), which first came into force in 2011. Its purpose is to require alternative funds, such as hedge funds, private equity and real estate funds, and other Alternative Investment Fund Managers (AIFMs) in the European Union to make various disclosures as a condition of operation. These disclosures include information on leverage and mark-to-market asset valuation. Whilst a more detailed discussion of these directives is beyond the scope of this research, AIFMD, CMU and BEPS regulations have increased risk management costs and are possibly changing the structures in which these funds operate.

6.4. Regulatory Impact on Margin by Lender Type

As different lender types compete for loans, the impact of their varied regulatory treatments will have an impact on pricing, which analysis indicates might lead to arbitrage opportunities for borrowers. In a market with a large number of newly-established lenders, borrowers may not ask their traditional UK bank to price a loan but, instead, may select one or two other lender types with the most favourable regulatory treatment for the desired loan in order to identify the most advantageously priced debt. Table 6.4 presents the minimum margin required by each type of lender, based on their different regulatory approaches, assuming a 65% LTV loan for a prime property in a good location. For comparative purposes, a 12% target return on equity is adopted for all lenders. The assumed risk weights reflect those provided by the different regulatory requirements. The higher the implied leverage, the less equity capital is required by the lender and the lower the loan margin that can be offered. With the lowest leverage ratio, the debt fund has the highest cost of capital, followed by UK banks, assuming the same return on equity target rate. The total cost is the weighted average of the return required on capital plus the required return on unsecured debt, which can be expressed as a percentage margin over the total exposure.

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Table 6.4: Minimal Margin Requirement by Lender Type and Selected Rating Approach

	Bank (Standard)	Bank (Slotting)	Bank (Found ation)	Bank (Advance)	Debt Fund	Insurer (Standard)
Return on Equity Target (A)	12%	12%	12%	12%	12%	12%
Risk Weight (B)	100%	90%	60%	40%	100%	70%
Capital Adequacy Ratio (C)	12%	12%	12%	12%	30%	10.0%
Funding Cost (D)	1.20%	1.20%	1.20%	0.30%	2.00%	0.95%
Illustrative Exposure (E)	1,000	1,000	1,000	1,000	1,000	1,000
Risk Weighted Assets (F) = E x B	1,000	900	600	400	1,000	700
Capital Requirement (G) = F x C	120	108	72	48	300	70
Unsecured Debt (H) = E - G	880	892	928	952	700	930
Implied Leverage (I) = E ÷ G	8.3x	9.3x	13.9x	20.8x	3.3x	14.3x
Cost of Capital (J) = G x A	14	13	9	6	36	8
Cost of Unsecured Debt (K) = H x D	11	11	11	3	14	9
Total Cost (L) = J + K	25	24	20	9	50	17
Minimum Margin Requirement (M) = L ÷ E	**250 bps**	**240 bps**	**200 bps**	**90 bps**	**500 bps**	**170 bps**

Source: Lloyds Banking Group plc, authors' own

The results show that German banks, by virtue of being eligible to adopt the Advance ratings approach, require the lowest minimum margin requirement for the example real estate loan, provided the Pfandbrief is the source of their funding and, hence, the lowest total cost base. Based on the authors' own calculations, however, insurers are also able to compete with the other banks, which may, in part, explain their growing market share. However, from a borrower's perspective, both of these lender types have specific requirements for allowable or eligible loans. For instance, at times there might be restrictions on the maximum loan size or, in the case of insurance companies, the need for long term asset-liability matching might restrict their ability to provide short-term loans. Thus, borrowers may still need to consider more expensive lenders in the market. The debt funds are by far the most expensive option for a borrower, in the Table 6.4 example because their leverage ratio is the lowest. However, borrowers may find debt funds to be the only source of finance for higher risk junior and mezzanine positions. Also, funds might be able to offer better speed of execution compared to banks as a back-up alternative, in circumstances where bank approval processes would take too long.

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Based on this analysis, regulatory treatment directly impacts lenders' ability to competitively price loans. In turn this might impact their ability to originate loans and maintain their market share over time. Borrowers will look for larger volume from low cost providers. However, whether regulations in themselves will allow borrowers a sustained arbitrage opportunity remains to be seen.

Many privately debate the even-handedness of regulatory treatment across borders. However, if a German Pfandbrief-funded bank has shown historically low actual defaults and losses on its conservative and cover pool eligible CRE loans and has developed the data technology and modelling to allow for an A-IRB approach to trigger attractive loan pricing, is this really inappropriate? Alternatively, if a UK bank has shown historically high actual defaults and losses on its more aggressive CRE loans and has not developed the data technology and modelling to allow it to adopt an A-IRB approach and is therefore obliged to operate under a slotting regime, is it inappropriate that it cannot offer the most attractive pricing? This highlights the dilemma regulators across Europe face. An international comparison of national regulators does not exist to determine the level of consistency between individual authorities. That a UK regulator has no jurisdiction over most non-UK banks is a separate point. Finally, it is unclear whether Brexit will have any repercussions on the UK's ability to change regulations on overseas banks active in the UK.

6.5. Impact of Basel IV

An unexpected consequence of the risk weightings imposed by Basel and the asset purchase programmes (as part of quantitative easing) has been to drive banks to pursue very similar assets, and offer very similar products, leading to pricing competition and resulting in rising capital values for certain assets.

The impact of Basel IV, potentially coming into force in 2019, could be that banks are no longer allowed to adopt the Foundation or Advanced IRB approaches for CRE loans. Of course, the impact on funding costs across various banks is not directly impacted in the short term. However, adopting the same methodology as in Table 6.4, the overall risk weight for a 60–75% LTV loan would translate into 100% RWA. The calculated minimum margin requirement for Advanced IRB banks may nearly double, from 90bp to 170bp, and these banks, post Basel IV, will no longer be able to offer the lowest margins. This is illustrated in Table 6.5.

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Table 6.5: Proposed Minimum Margin Requirements Post-Basel IV

	Bank (Standard)	Bank (Slotting)	Bank (Foundation)	Bank (Advance)	Debt Fund	Insurer (Standard)
Return on Equity Target (A)	12%	12%	12%	12%	12%	12%
Risk Weight (B)	100%	90%	100%	100%	100%	70%
Capital Adequacy Ratio (C)	12%	12%	12%	12%	30%	10%
Funding Cost (D)	1.20%	1.20%	1.20%	0.30%	2.00%	0.95%
Illustrative Exposure (E)	1,000	1,000	1,000	1,000	1,000	1,000
Risk Weighted Assets (F) = E x B	1,000	900	1,000	1,000	1,000	700
Capital Requirement (G) = F x C	120	108	120	120	300	70
Unsecured Debt (H) = E - G	880	892	880	880	700	930
Implied Leverage (I) = E ÷ G	8.3x	9.3x	8.3x	8.3x	3.3x	14.3x
Cost of Capital (J) = G x A	14	13	14	14	36	8
Cost of Unsecured Debt (K) K = H x D	11	11	11	3	14	9
Total Cost (L) = J + K	25	24	25	17	50	17
Minimum Margin Requirement (M) = L ÷ E	**250 bps**	**240 bps**	**250 bps**	**170 bps**	**500 bps**	**170 bps**

Source: Lloyds Banking Group plc, authors' own

While A-IRB banks, which are mostly Pfandbrief-funded German banks, will lose some of their competitive edge as their RWA rises under Basel IV, UK slotting banks will no longer be penalised. However, it is worth noting that German banks will be able to retain their funding advantage through the long-term covered bond market and remain one of the most competitive CRE lenders in the UK and elsewhere. However, the impact on UK banks would be positive as average risk-weights will have decreased. One way to take advantage of the low funding costs in German is to establish a subsidiary in Germany and register as a Pfandbriefbank, which some international players have done in the past.

Further discussions points of Basel IV that might also impact on CRE lending are the suggested minimum requirements on reporting information, which indicate that in cases of missing credit information a maximum RWA of 300% should be applied. Banks are already dealing with increased 'know your customer' (KYC) processes and requirements, and additional borrower reporting might make bank lending even more unattractive for borrowers. The new global rules are due to be completed by end-2019 and expected to come into effect in 2019. Overall the proposed rules for Basel IV still penalise CRE lending, which is secured lending, compared to many other types of lending with relatively higher risk weights for similar risks taken. Some further criticisms of the approach are:

6. REGULATORY IMPACT ON CRE LENDING

- Given the diversity of global real estate markets in terms of risk profile, a one-size-fits-all approach is not appropriate.
- Since regulatory capital charges are specific to each bank's internal controls and does not need to be disclosed to the borrower, it is difficult to draw a line between conservative capital assumptions and increase profit from a transaction, leading to a possible arbitrage.
- There should be consistency between risk weights across different exposure classes, so that secured exposures are not penalised compared to unsecured exposures.
- The proposed risk weights lead to significantly higher standardised approach capital charges for higher LTV loans, but does not take other criteria, such as the underlying cash flow, into account.
- A more balanced approach is needed for income-producing real estate versus development/non-income producing property.
- A fine-tuning of operational requirements is needed in relation to the recognition of guarantees, borrower track record and financial collateral, as well as valuation basis and frequency.

6.6. Challenges for the CRE Lending Industry and Market Transparency

The most important challenges for the CRE lending industry in the UK were laid out in the seven recommendations from the May 2014 IPF-sponsored independent industry discussion paper, *A Vision for Real Estate Finance in the UK*. This noted that financial stability is far too important to be left to a process that pitches well-intentioned, inherently imperfectly informed regulators against well-informed, understandably regulation-resistant lenders. The document proposed an approach involving experienced professionals from across the market spectrum, each stepping aside from the interests of their organisations and resolved to make their best recommendations for a market structure that both protects financial stability and supports economic growth. The recommendations from the original report are repeated here for ease of reference.

Information, analysis and expertise

1. Loan database: All lenders in the UK CRE market, regardless of type or location, should be required to collect and submit to a centralised database specified information about each UK CRE loan and its collateral, immediately upon making the loan and periodically throughout its life. The regulator should have full access in real time not only to the data, but also to individual lender and overall market risk analyses conducted on the basis of the data. There should also be controlled public access to the database.
2. Expertise and insight for the regulator: The regulator should have access to expert interpretation and analysis of market information, particularly to give it insight into where in the cycle the overall market and individual market segments are likely to be at any particular moment. Expertise and insight from market participants and external experts should supplement and complement a well-resourced pool of CRE finance expertise within the regulator.

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3. CRE finance qualifications: Key members of CRE lending teams and credit functions with responsibility for UK CRE lending, regardless of type of institution, should have an appropriately accredited CRE lender qualification, maintained through continuing professional education.

Incentives

4. Use of long-term value measures for risk management: For CRE lenders subject to regulatory capital rules, loan-to-value (LTV) based capital requirements should be linked to a long-term measure of collateral value that is insensitive to the investment cycle.
5. Better risk differentiation in regulatory capital requirements: The basis for regulatory capital requirements should more accurately reflect the actual level of risk arising from CRE loans, with greater differentiation of capital requirements between loans with different risks. Very low-risk CRE lending (even if unrated) should be recognised as such for banks, including through the terms on which such loans may be used as collateral at the Bank of England

A market structured for stability

6. Encouraging diversity: The regulator's function should reflect the important role that can be played in promoting financial system resilience and stability by diversity of lender response (principally through diversity of lender types and lender strategies, and with a focus on the role secondary markets can play). Where possible, regulatory action should have regard to levels of diversity and seek to reduce barriers to entry, particularly for new or under-represented types of lender.
7. Regulatory governors, not switches, operating consistently across the cycle: Regulators should use regulatory governors (including the application of sectoral and counter-cyclical capital buffers) that increasingly restrain regulated lenders as the CRE market rises above its full cycle average, irrespective of views about whether a CRE market crash is anticipated or considered unlikely. An explanation should be required where the regulator wishes to override that framework.

Based on publicly available information, the assessment of the research authors on the progress made on each of these Vision recommendations after more than two years is summarised in Table 6.6.

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Table 6.6: Vision Recommendations - Progress to Date

	Recommendation	Current Status	Net Impact
1	Loan-by-loan database	Private discussions within the PIA Debt Group continue on possible solutions, but no announcement	Neutral
2	Regulator expertise	BoE Real Estate Forum continues to meet privately and BoE publicly supportive of PIA initiatives (but without committing resources)	Neutral
3	Professional qualification	Private discussions within the PIA Debt Group continue on possible solutions, but no announcement	Neutral
4	Long-term value concept	Private discussions within the PIA Debt Group continue on possible solutions, but no announcement	Neutral
5	Differentiation in regulatory capital requirements	PRA imposes slotting for UK banks and Basel proposal seeks reduced differentiation and floors for IRB	Negative
6	Encouraging lender diversity	More non-bank lenders have entered the market, but CMBS remains minimal only offset by increased senior unsecured issuance	Positive
7	Regulatory governors	BoE has expanded its general policy tools, but also put counter-cyclical measures on hold after Brexit vote. CRE credit-specific policy remains unclear.	Neutral/ Negative

Based on this assessment, it seems clear that despite continued regulatory headwinds, some progress has been made. This is especially the case with the recent increased lender diversity, although it seems unlikely that there was in fact any active encouraging from regulators and policy makers. It could be claimed that non-bank lenders were drawn to the gap left by deleveraging banks and resultant attractive pricing. As far as is publicly known, none of the recommendations made has yet been incorporated into regulatory policy. Accepting that private discussions within the Property Industry Alliance (PIA) have been ongoing for over two years, it is the authors' views that so far the Vision Paper remains a missed opportunity to create the transparency needed to allow a useful analysis of market risks. The US regulators have required much greater disclosure from banks on CRE loans via the federal system of stock market disclosure. This is in addition to the already publicly available information on CMBS-funded and other individual commercial mortgages registered at local county court houses across the US. It seems inconsistent that many European banks active in the US are happy to accept these loan disclosure requirements in the US, but remain reluctant to provide loan-by-loan disclosure in their own home markets. More can and should be done by regulators and the industry alike.

6. REGULATORY IMPACT ON CRE LENDING

The latest statements of the European Union on the progression of the Capital Markets Union include amongst others the following proposals, which closely affect real estate as an asset class:

- Convergence of insolvency and enforcement rules, reducing inefficiencies and differences that act as a brake on cross-border lending;
- Legal framework that will allow "honest entrepreneurs to benefit from a second chance after overcoming bankruptcy";
- Harmonisation of the debt/equity tax bias, corporate tax, anti-avoidance measures linked to the OECD's base erosion and profit shifting (BEPS) proposals, promoting "a stronger equity based in companies" and greater financial resilience;
- Supporting green finance (look out for a "comprehensive European strategy");
- fintech (which should, apparently, be "harnessed") and promoting covered bonds and
- Encouragement of securitisation through "simple, transparent and standardised" (STS) securitisation, however this might come with a 20% risk retention.

In addition to the above, the Commission is keen "to support the development of covered bond markets throughout the EU", seeing them as a key channel for longer term finance, including for real estate. However, where the UK stands on the above points after Brexit remains to be seen.

6.7. Impact of Quantitative Easing and Low Interest Rates on CRE Lending

Quantitative easing (QE) is the most celebrated of the post-GFC monetary policies. Its purpose has been to reduce the yield on government bonds by central bank purchasing programmes. Together with forward guidance, the aim of this policy is to assure investors that short-term interest rates will remain low for a long time. The many implications are beyond the scope of this report, but two points of note in relation to CRE lending are:

1. The relative return banks and other lenders can earn on other assets and even risk-free assets has been much reduced, making CRE lending more attractive; and
2. Rated CRE debt instruments, like bonds, are eligible under the QE purchase programme and repo finance scheme. This technical point can have a disproportionate impact on eligible versus ineligible loan assets.

In turn, low rates are expected to encourage more consumer spending and corporate investment and stimulate the global economy. However, QE has not had the powerful impact on economic growth and employment that central banks expected. Whilst reducing global uncertainty and sparking a recovery in stock markets, raising the prices of many assets and the worth of investors that held them, there has been little positive effect on economic and job growth in many European countries (such as Spain, Italy and France). QE made it easier for low risk and wealthy consumers to borrow at cheaper rates.

6. REGULATORY IMPACT ON CRE LENDING

General economic theory suggests that QE might affect asset prices via:

- Macro economic policy: previous announcements of QE and the state of the economy by the BoE has typically led to reactions in stock markets.
- Portfolio balance: reflects the direct impact on asset prices of investors rebalancing their portfolios in response to the Bank of England's QE-related asset purchases.
- Liquidity premia: the presence of the central bank in the market as a significant buyer of assets may improve market functioning and thereby reduce premia for illiquidity.

Academic research by Breedon et al (2012), Joyce et al. (2011) suggests that bond yields have been affected by 30-90 bps for five- and 10-year bonds respectively. The effect on equity markets are expected to be larger but much harder to estimate. There is a strong long-term relationship between interest rates and real estate cap rates. However, the time lags can be rather long and there have been powerful medium-term offsets in the past. On a relative value basis, multi-asset investors are likely to have a lower required rate of return for CRE if bond yields are low. This will allow for further declines in initial yields, as CRE will be strongly bid and values increase. Prolonged QE programs remove uncertainty in the short- to medium-term around potential interest rate rises and currency fluctuations.

Summary Section 6

- A large number of new non-CRE specific regulations have been launched since the GFC, with little coordination amongst different national and sector-specific regulators. These have impacted various CRE lender types as well as borrowers differently.
- The Basel framework ruling banks is expected to evolve further in future. Inconsistent implementation of Basel across countries remains, with the UK's central bank implementing strict slotting rules for banks' CRE loans.
- Regulatory treatment across all lender types impacts lender ability to competitively price loans based on their cost of capital. Insurers need to comply with Solvency II capital rules, which require similar capital reserves as German covered bond-funded banks. In the UK market, this has meant that German banks able to use the advanced-IRB approach and insurers subject to Solvency II are able to offer loans at lower margins than UK banks and other lenders. It is unclear if this is unfair, but it does offer an arbitrage for borrowers.
- Consequently, insurers and German A-IRB rated banks focus on lower risk and lower margin lending business, leaving more risky lending to debt funds requiring higher margins. Regulation is expected to directly impact loan pricing (by up to 80 bps) for A-IRB regulated banks. In particular, Solvency II is keeping insurers and insurer-funded senior debt funds focused on low risk and low margin loans.
- Some progress has been made in meeting the challenges set by the 2014 Vision paper, despite significant regulatory set-backs. However, much more needs to be done to improve transparency and facilitate the sustainability of non-bank lenders in the longer term.
- Asset purchasing programmes by central banks, as part of their quantitative easing policies, have only benefited certain asset types.
- Quantitative easing has not yet had the expected positive impact on economic and job growth. But, CRE has become better relative value for multi-asset investors as bond yields tighten. The UK decision to leave the EU has increased uncertainty on many fronts.

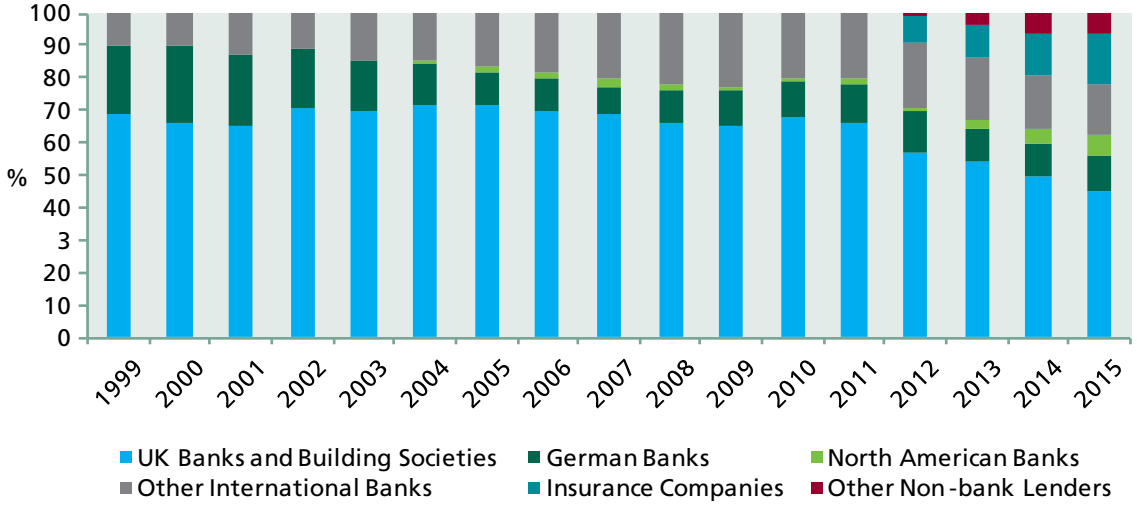
7. IMPLICATIONS OF INCREASED CRE LENDING DIVERSIFICATION

This concluding section discusses the implications of the increased lending diversification in terms of the level and volatility of new loan originations, additional regulation and loan pricing. Amongst other things, it considers how the changing sources of capital have affected bank lending, as evidenced by the emergence of more non-bank lenders, the implications for loan pricing and the potential impacts of increasing regulation on both lenders and borrowers.

7.1 Comparison of US and UK CRE Mortgage Markets

Especially following the onset of the GFC in 2007, bank lending has been constrained in Europe and several new types of lenders have emerged for mezzanine finance as well as senior lending. For the UK market, Figure 7.1 shows the types of lenders active in the market over time.

Figure 7.1: UK CRE Loan Origination by Lender Type, 1999–2015



Source: De Montfort University

Since 2008, UK insurers have been some of the most active players for non-bank senior lending in Europe. Nevertheless, their exposure to CRE remains limited (less than 2% of their total assets). In comparison, in the US insurers currently represent 20% of new lending, having been the original lenders to CRE from the inception of the market. Despite being active in the 1970s and 1980s, it remains to be seen if UK insurers will be long-term market participants or if this is only a short-term phenomenon, until the banks recover from the crisis. Insurers currently hold 15% of total CRE debt (De Montfort 2016) while 77% is still held by banks. What can be said is that insurance companies and pension funds have the capacity to build CRE lending teams or, in many cases, already have in-house resources to allocate to lending due to their direct real estate investment arm and large capital resources, as well as different allocation and investment preferences. These range from private debt markets, special situations, illiquid debt strategies, credit investment strategies and real estate. However, insurers are restricted by Solvency II regulation, which sets rules for capital charges against certain asset classes, making real estate debt more or less attractive on a risk-adjusted return basis.

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Private equity funds, the other group of non-bank lenders, on the other hand are not regulated. Their appetite is driven by investor return requirements and, typically, the yields these funds seek are higher than those of insurance companies. Hence, they might also look to purchasing mezzanine and junior loans in the secondary market, or junior CMBS bonds. At the same time they also receive capital from pension funds, which can place capital with different debt funds under different strategies. This type of institutional capital is a key driver for the growth of debt funds in general, which hold 8% of the aggregated real estate debt (De Montfort 2016). In total, non-bank institutions (e.g. insurance companies, pension funds, private equity funds) have initiated or stepped up their lending activities in some jurisdictions in order to fill the void left by banks or get access to higher yielding exposures (FSB, 2013). Debt funds are being created in different European countries as a response to the ongoing banking deleveraging and disintermediation process due to the combined effect of credit deterioration, stricter regulatory requirements and increased capital constraints. Debt Funds can be invested in different underlying assets like loans, SME bonds/minibonds, or similar instruments (funds that are only invested in loans are typically called loan funds or credit funds and form a sub-category of debt funds).

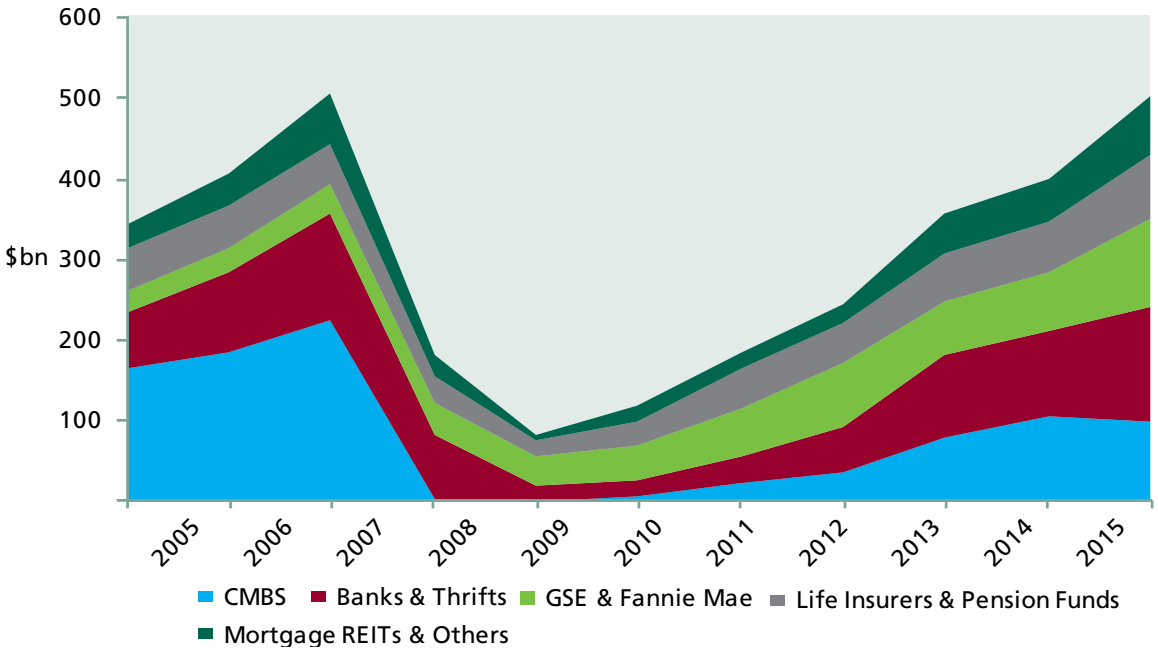
Analysing the annual mortgage origination figures from the US Mortgage Bankers Association, a number of trends and structural shifts over the 2005-2015 period are worth pointing out:

- After a more than 80% decline from over $500 billion in 2007 to just over $80 billion in 2009, annual loan originations have returned to over $500 billion in 2015. This recovery was triggered by quantitative easing, but was also helped by the diversity of lenders and the typical US 10-year loan structure.
- CMBS lender dominance from a near 50% of annual originations in 2005, reduced to 20% share in 2015, after near-zero originations in 2008–2009.
- Banks and thrifts (the US equivalent of building societies) had the largest market share (28%) of any lender type based on 2015 loan origination volume. This is hardly a dominant position, but represents a higher amount than their 2007 originations.
- Government-backed multi-family lenders in the US, like Fannie Mae, Freddie Mac and FHA, have played a leading role in the recovery of that country's origination market. Their annual origination levels tripled from 2006 to 2015 to reach a 22% share in originations in 2016.
- Life insurers and pension plans held a 15% market share in 2016, but have been a long-standing participant in the US CRE mortgage market.
- Mortgage REITs and other non-bank lenders have been a feature of the US market for a long time and had a 15% market share in 2015 originations.

7. IMPLICATIONS OF INCREASED CRE LENDING DIVERSIFICATION

Figure 7.2 shows loan amount by type of lender in the US.

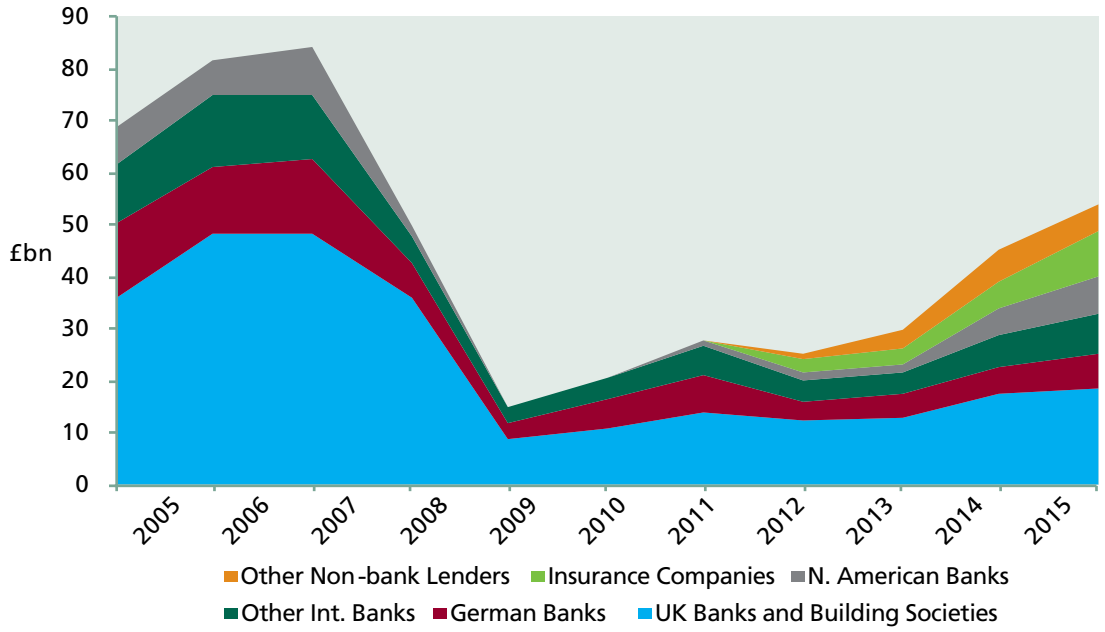
Figure 7.2: Annual US Mortgage Origination by Lender Type, 2005–2015



Source: US Mortgage Bankers Association, 2016

Figure 7.3 shows loan originations by type of lender for the UK.

Figure 7.3 Annual UK Mortgage Origination by Lender Type, 2005–2015



Source: De Montfort University, 2016

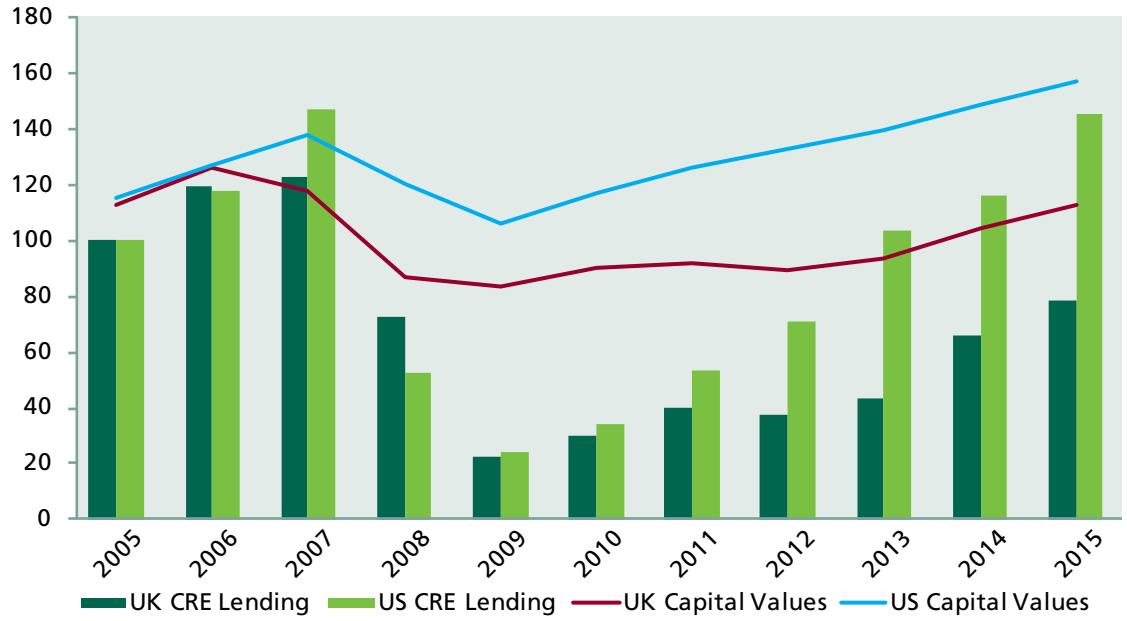
7. IMPLICATIONS OF INCREASED CRE LENDING DIVERSIFICATION

As Figure 7.4 shows, the impact of a faster recovering lending market has had a positive impact on the direct real estate market in the US, as capital values have rebounded quicker than in the UK. A direct causal relationship is hard to prove with only annual data points on originations but a number of observations may be made:

- UK All Property capital values at year-end 2015 had only recovered to their year-end 2005 levels, being 11% below their previous cycle peak as at year-end 2006.
- US All Property capital values broke through their previous cycle peak in 2013 and have continued to rise. At year-end 2015, US values were 14% ahead of the year-end 2006 peak.
- Loan origination volumes in the UK are currently only 64% of 2007 volumes.
- The well-diversified US CRE lending market equalled its previous 2007 record of loan origination in 2015.

Given the significant differences in US and UK loan structuring, pricing and terms, a comparison of simple loan margins is deemed inappropriate although it could be claimed that the emergence of new non-bank lenders in the UK market was fundamental in assisting the recovery of the underlying CRE investment market, especially in the secondary segments.

Figure 7.4: UK & US Mortgage Origination & All Property Capital Value (Indexed 2004 = 100)



Source: De Montfort University, MBA, MSCI and NCREIF

The US market data implies that greater lender type diversification and transparency strengthen the resilience of both the CRE lending and underlying property markets. Although the recovery of real estate values has been slower in the UK, increased lender diversification has supported loan origination volumes to improve, albeit at a lower pace than in the US.

7. IMPLICATIONS OF INCREASED CRE LENDING DIVERSIFICATION

With regards to financial risk, loan defaults for post-GFC originated loans are likely to be very low or zero given the increase in regulation. Again, this makes it difficult to draw any comparison between bank versus non-bank originated CRE loan defaults in the UK or elsewhere in Europe. However, in the case of non-bank lenders such as debt funds, the impact of any CRE loan defaults and/or losses on the financial system will be limited due to their small market share. In addition, the high degree of specialisation amongst the CRE debt funds will make default cases very much an individual event in the authors' view.

7.2 Implications of UK CRE Regulation

Earlier analysis confirmed that slotting has restricted bank appetite for high risk/high LTV lending and has ultimately had an impact on their loan pricing. On the positive side annual stress test results show that UK financial stability has improved with higher capitalisation of banks. These stress tests assume a severe recession, including an abrupt slowing in capital flows and falls in residential and commercial property prices of around 35% and 30% respectively. The latest research published by Moody's Investor Service also confirms that tier 1 capital ratios have significantly increased and that large UK banks carry a low risk in a new downturn scenario. Banks were able to free up additional capital when, following the Brexit vote in June 2016, the PRA reduced the UK countercyclical capital buffer rate from 0.5% to 0% expected to remain in place until at least June 2017.

Thus regulations have improved financial stability and at the same time increased diversity within the CRE lending market. For instance, in 2002 the De Montfort survey included results from 51 lenders; in 2007 this number had grown to 69 lenders, all of which were exclusively banks and building societies. At the end of 2015, 20 debt funds, eight insurers and 54 bank lenders were accounted for in the survey. Despite this diversification, the same six banks maintain their exposure of more than £10 billion of CRE loans from 2007 to 2015. This continued market concentration is partially due to bank mergers, such as HBOS and Abbey National.

Especially with the forthcoming negotiation of the UK's exit from the European Union, its convergence of regulation with the rest of Europe has become much less certain than before. Within Europe, UK regulators have taken the strictest approach in regulating real estate lending by not allowing banks to use their own risk models to assess real estate loans. The implementation of a 'one size fits all' slotting approach to real estate debt exposures has led to selective lending, which favours assets that fit into a specific set of criteria without a real risk assessment. Other European countries have so far taken a more flexible approach. However, the forthcoming Basel III and IV rules impose stricter capital adequacy requirements on banks in Europe. As there are still very large amounts of NPLs sitting on European bank balance sheets, the authors expect that banks will continue to delever and for the diversification of CRE lending sources to continue for the foreseeable future.

Insurers have their own solvency regime to deal with – Solvency II – and, naturally, European insurance companies are eager to find and hold profitable investments that require lower capital reserves. As previous has shown, insurers (subject to Solvency II) can offer similar attractive loan pricing as German covered-bond funded banks.

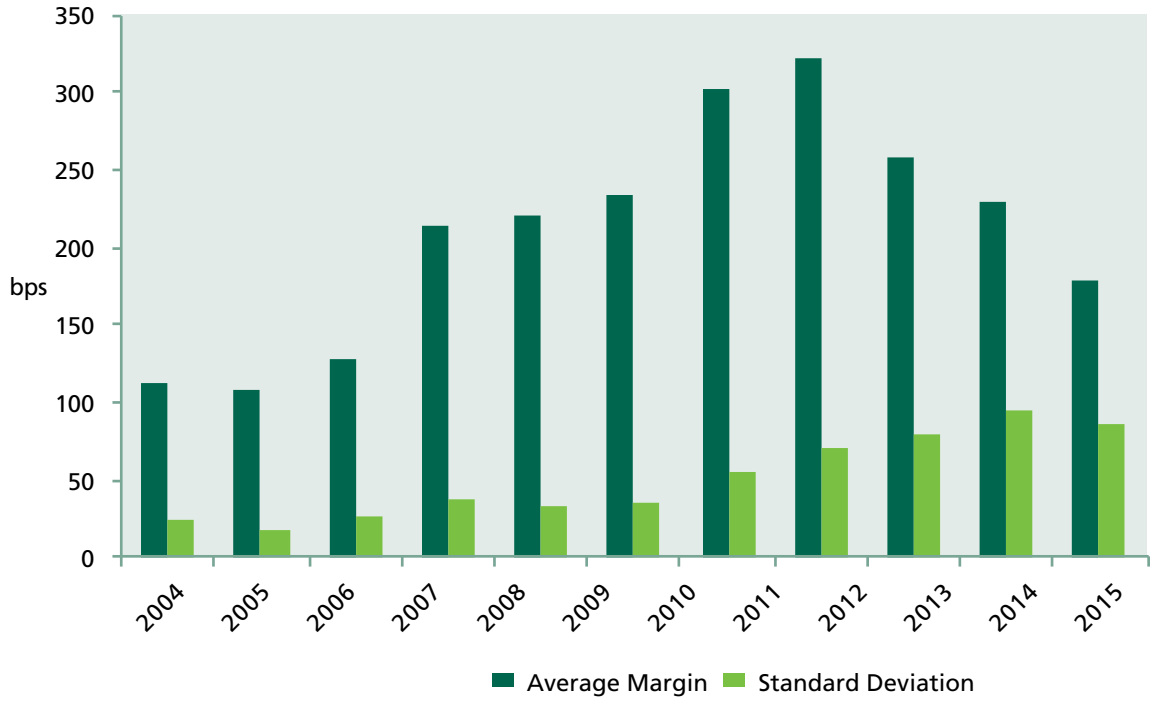
Debt funds, on the other hand, are regulated just like other private equity and hedge funds under the AIFM. One requirement is that they are set up and managed by an AMF (authorised management company) which has to fulfil certain risk management controls. However, this is not targeted specifically at real estate debt as an asset class but to the private equity fund management industry as a whole.

7. IMPLICATIONS OF INCREASED CRE LENDING DIVERSIFICATION

7.3 Implications for CRE Loan Margins

The more significant impact of lender diversification seems to be on loan pricing. Since the implementation of new regulations for all types of lenders, there is no longer a common approach to loan pricing, which has given the opportunity of pricing arbitrage between the different lender groups. Whilst the actual impact of different lender types is that higher lender diversity has led to lower average margins, greater volatility has emerged due to a wider range of loan margins available for the same LTV loan.

Figure 7.5: Variability in UK Margins, 2004–2015



Source: De Montfort University

As a result, investors should pro-actively diversify across lender types as the range of margins widens and more bank regulation looms. This wider range of debt providers, as well as margins, provides a role to intermediaries such as CRE mortgage advisors acting between borrowers and lenders until greater transparency emerges. It also confirms the remaining lack of transparency on CRE loan pricing for borrowers. One example is the Giliberto-Levy Commercial Mortgage Performance Index (G-L Index or GLCMPI) in the US, which measures the investment performance of select investments in CRE debt. Specifically, the Index tracks fixed-rate, fixed-term senior loans that are made by and held in the investment portfolios ('on balance sheet') of institutional lenders, such as life insurance companies and pension funds. However, as mentioned previously, in Europe most private CRE debt is held on bank balance sheets and the market for fixed rate loans is very limited. Moreover, since the rising amount of regulation loan pricing has become an exercise of adequate capital requirements, which makes the establishment of an index in Europe at this stage very difficult.

7. IMPLICATIONS OF INCREASED CRE LENDING DIVERSIFICATION

In summary, the factors that have improved financial stability and pricing are:

- Regulation, forcing banks to prudent lending practices against real estate assets such as lower leverage, improved risk-adjusted pricing;
- Restricting overall lending exposure of real estate loans to total assets in large UK banks has led to deleveraging and lower exposure levels of CRE loans, which has stimulated lender diversification to bridge the gap;
- For borrowers, UK margins have become more attractive due to competition from non-banks; however, countries with Pfandbrief funding available can offer the lowest margins, which creates a barrier of market entry to the establishment of other non-bank lenders such as debt funds in those countries.

Summary Section 7

- A comparison between the UK and US shows that UK All Property capital values at year-end 2015 were still 11% below their previous cycle peak, in contrast to the US being 14% ahead of their previous year-end 2006 peak.
- The US market data implies that greater lender type diversification and transparency strengthens the resilience of both the CRE lending and the underlying property markets. Therefore, there is an expectation that a better diversified lending market in the UK will support a more robust capital value recovery in future market cycles.
- A crucial impact of tighter bank regulation is the emergence of increased lender diversity, which supports more stable annual origination volumes. This stability of debt funding re-enforces the consistency of capital availability to the borrowers in the investment market.
- As lender diversity has increased in the UK in recent years, it has also led to lower average loan margins. But, a wider range around this declining average loan margin also emerged due to the larger number of different lenders competing in the market.
- This wider range of loan margins in the market is in part explained by different lenders focusing on various risk segments of the market. As mentioned before, insurers and senior debt funds are more focused on low-margin and low-risk loans.
- With the potential introduction of Basel IV rules, the remaining A-IRB banks (mostly German Pfandbrief-funded banks) will no longer be able to get favourable capital treatment for their CRE loans. This has the potential to limit their ability to provide low margin loans and is another example of regulatory changes directly impacting on CRE loan pricing. This further supports the view that regulation drives loan pricing.
- From a borrower's perspective, it would be wise to actively diversify amongst lender types as future regulatory changes might more or less severely impact different lender. Regulatory diversification might be a clever objective in its own right.

APPENDIX A: DEFINITIONS AND ACRONYMS

AIFMD Alternative Investment Fund Managers Directive 2011/61/EU

BIS Bank for International Settlements

BEPS Base erosion and profit shifting

BCBS Basel Committee on Banking Supervision

CMBS mortgage backed securities

CMU capital markets union

DEBT YIELD net operating income divided by loan amount

EAD exposure at default

EBA European Banking Association

ESMA European Securities and Markets Authority

EMIR European Market Infrastructure Regulation

EIOPA European Insurance and Occupational Pensions Authority

FSB Financial Stability Board

GFC Global Financial Crisis 2008–2009

Junior loan/debt is a junior tranche of an A/B loan split ranking behind the senior tranche but secured on the same mortgage

LGD loss given default

LTV loan to value

Mark-to-market (MTM) an accounting method that records the value of an asset according to its current market price.

Mezzanine loan/debt is any debt that is paid after a first mortgage. A mezzanine loan that is not directly secured on the property but rather by a pledge over the shares in a property owning entity is the typical mezzanine structure used in the US but is less popular in Europe. Often it refers to a second or third short-term mortgage.

NPL non-performing loan

PD probability of default

REIT real estate investment trust

RWA risk weighted assets

REOC real estate operating company

Senior loan/debt is the first ranking loan secured by a first ranking mortgage

SME small medium size enterprise

Solvency Solvency II Directive (2009/138/EC) is a directive in European Union law that codifies and harmonises the EU insurance regulations. This came into effect on 1 January 2016.

SPV special purpose vehicle

APPENDIX B: THE BASEL COMMITTEE REGULATORY FRAMEWORK

Basel I (1988) established the basic architecture for setting minimum risk-based capital requirements for banking organisations in order to stabilise the international financial system. At the time, Basel I recognised only credit risk exposure as the important element of the risk equation for banks. This is linked to the banking book assets. At a later stage, due to trading book expansion, BCBS recognized the importance of the market risk exposure as well. The Basel Capital Adequacy Agreement imposes internationally agreed upon weights for the different types of risk, including off-balance-sheet risks, and requires that banks in countries subscribing to the agreement should maintain a ratio of 8% capital (consisting of Tier I and Tier II elements described above) to risk-weighted assets.

Banks especially are highly leveraged institutions and the main motivation of the new regulatory requirements is to protect banks' debt holders against peak losses that exceed expected loss levels – the so-called unexpected loss (UL). In particular, the requirements under Basel II have a large impact on the capital requirements for commercial real estate (CRE) loans on banks' balance sheets. A bank's available capital has to be no less than 8% of risk-weighted assets (RWA). Basel III & II distinguish between three main approaches for estimating the minimum required regulatory capital: Slotting (standardised), Foundation IRB and Advanced IRB. All institutions using the IRB (internal rating based) approach are required to determine the borrowers' probabilities of default (PD) while those using the advanced IRB approach are also required to estimate their loss given default (LGD) and exposure at default (EAD) on an exposure-by-exposure basis. These risk measures are converted into risk weights and regulatory capital requirements by means of risk weight formulas specified by the Basel committee. Depending on the type of asset, different risk weights apply. In summary, the variables that are considered for the calculation of required capital are PD, LGD and EAD. The relationship between them is straightforward.

Equation B.1

RWA = 12.5 x K x EAD

Min. Tier 1 and 2 Capital = 8% of RWA or, simply, K x EAD.

The difference between the approaches is who calculates the inputs required. Essentially, the standardised approach as a simple lookup table that slots the different assets according to their risk into categories. In using the foundation IRB, the bank only has to estimate PD, and the regulator has fixed the LGD for mortgage lending to 45%. In the advanced approach the bank also has to estimate its own LGD. In summary the variables for the three approaches are as follows:

Standardised (slotting for PD and LGD);

Foundation IRB (variables: PD, EAD, M, Slotting for LGD); and

Advanced IRB (variables: PD, LGD, EAD, M).

Whenever a bank chooses to proceed to use a higher order approach, it cannot go back to the lower order approach. CRE lending is considered specialised lending which under the Foundation IRB has the slotting criteria shown in Table B.1.

It is up to the bank how to estimate PD and classify each loan into the five risk categories. Under the standardised approach, the capital required is a function of the exposure's credit type (for example, corporate, sovereign) and credit rating. Under IRB, a formula is applied.

APPENDIX B: THE BASEL COMMITTEE REGULATORY FRAMEWORK

Table B.1: UK slotting criteria for specialized CRE lending

Year (RWA)	Strong	Good	Satisfactory	Weak	Default
<2.5yr	50%	70%	115%	250%	0%
>2.5yr	70%	90%	115%	250%	0%

Year (RWA)	Strong	Good	Satisfactory	Weak	Default
<2.5yr	0.4%	0.8%	2.8%	8.0%	50.0%
>2.5yr	0.4%	0.8%	2.8%	8.0%	50.0%

There are two approaches when using the IRB: foundation and advanced. The difference between the two approaches does not lie in the formula (the calculation is the same) but, rather, in is who develops the inputs or estimates to the formula - the bank or regulatory supervisor. Under the advanced approach (A-IRB), the bank estimates LGD as an additional factor, which is likely to be less than the fixed 45% for mortgages under the foundation approach. The capital required (K) under IRB is given by the following formula:

Equation B.2

$$K = \left(LGD x N\left(\sqrt{\frac{1}{1-R}} x G(PD) + \sqrt{\frac{R}{1-R}} x G(0.999) \right) - LGD x PD \right) x \frac{1+(M-2.5)xb(PD)}{1-1.5xb(PD)}$$

where K is the capital requirements, R is the correlation, and M is the maturity factor.

The idea of this formula has been derived from the Merton model and Equation B.2 may be explained as follows:

The risk weighted assets (RWA) = 12.5 x EAD x K, where EAD = exposure at default. Under Basel II, capital of at least 8% must be held against risk-weighted assets (RWA). So, capital required for an exposure, C, = 8% x (12.5 x EAD x K) = EAD x K. The 12.5 is used merely to convert (K x EAD) into RWA so it can be added to the market risk charge (MRC) and the credit-risk charge (CRC). The capital charge, under Foundation or Advanced IRB, is equal to the capital requirement (K) multiplied by the exposure at default (EAD) (Capital charge = K x EAD). As regards the capital requirement (K), the point of the first term is to translate an expected loss into what can be interpreted as a worst-case loss (WCL), i.e. which is not the absolute worst loss, rather the loss at some confidence). In the first term, PD is changed to a conditional PD. We can say the first term re-levers the PD into something higher. To understand this, let us imagine a correlation (R) equal to zero. If R = 0, then K will equal zero because the first term reduces to K = LGD x PD - LGD x PD. The reason is that for a diverse portfolio a correlation of zero implies no systematic risk but all idiosyncratic risk; hence, there is no capital charge. Idiosyncratic risk should be eliminated in the portfolio. The middle term starting with N () is the standard normal distribution of the expected loss at a specified level of confidence. N () =NORMSDIST () in Excel. G () = is the inverse of the standard normal distribution: = NORMSINV (). Therefore, the term N(G[PD]) = PD can be seen as levering up the PD, as a function of the exposure's correlation to the 'systematic risk factor'. The confidence interval selected in G(PD) is 99.9%. Further, "The asset correlation function is built of two limit correlations of 12% and 24% for very high and very low PDs (100% and 0%, respectively)", (Basel II). This has the practical effect of taking an average PD and translating it into a conditional PD that is significantly higher.

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The other aspect of the conservatism is that LGD is translated into downturn LGD where banks are asked to report LGDs that reflect economic-downturn conditions in circumstances where loss severities are expected to be higher during cyclical downturns than during typical business conditions. By subtracting (LGD x K), K is covering estimated unexpected losses (UL = VaR - EL). In summary, the IRB estimates a conditional expected loss, which is really a value at risk (VaR), because Basel wants the bank to cover expected loss (EL) plus unexpected loss (UL). However, the product (LGD x PD) is deducted because 'regular' expected losses should be covered by loan loss provision. In simple terms, the capital charge is therefore meant to cover all the unexpected losses that exceed the expected losses:

K = (downturn LGD x conditional levered PD - downturn LGD x PD) x M

Another factor that has not been explained so far is the maturity adjustment factor, M. The maturity adjustment serves to increase K (as a multiplier) as a function of maturity; a longer maturity creates a higher multiplier. Note that PD also enters into the adjustment. In comparison, the slotting approach does only distinguish between greater than and less than five-year loans.

Equation B.3

$$M = \frac{1 + (M - 2.5) \times b(PD)}{1 - 1.5 \times b(PD)}$$

The term b(PD) is a linear function that is higher for lower PDs, meaning a higher-quality exposure (lower PD) implies a higher maturity adjustment.

The rationale for this is as follows: economically, maturity adjustments may also be explained as a consequence of mark-to-market valuation of credits. Loans with high PDs have a lower market value today than loans with low PDs with the same face value, as investors take into account the expected loss, as well as different risk-adjusted discount factors. The maturity effect would relate to potential downgrades and loss of market value of loans. Maturity effects are stronger with low PDs than high PDs. The reason can be explained thus: a lower PD borrower has more 'potential' and more room for downgrading than a high PD borrower. Consistent with these considerations, the Basel maturity adjustments are a function of both maturity and PD, and they are higher (in relative terms) for low PD than for high PD borrowers. Asset correlations (R) are also considered in the advanced IRB formula, but are insofar fixed as values are given depending on asset class. Supervisory correlation estimates are given for corporate, bank and sovereign exposures. The asset correlation function is built of two limit correlations of 12% and 24% for very high and very low PDs. This is a very random choice with little historic evidence and there is no specific adjustment for CRE exposures.

Using the advanced IRB should typically lead to lower RWA especially driven by the lower LGD estimates. The reduced minimum capital leads to direct savings due to a lower amount of capital tied up on the balance sheet and hence, a reduction in the cost of debt and higher returns on banks' equity.

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From the real estate lender and equity investor perspective some of the critics of the Basel approaches can be summarised as follows:

- Firstly, there is no reference in the Basel II proposals as to what methods can be used to value real estate as an asset class.
- It is necessary to have an (internationally) acceptable definition of what constitutes market value and to acknowledge international valuation standards for real estate. There are basically five principal methods of valuation, which should alternatively be adopted when the market value of real estate needs to be calculated
  - (1) the Direct Capital Comparison;
  - (2) the Investment Approach;
  - (3) the Residual Approach;
  - (4) the Profits Approach; and
  - (5) the Cost Replacement Approach.

  When banks loan money to real estate companies they should be able to assess the value of the real estate collateral by using one of these methods.
- Explicit rules should be imposed by the regulatory authorities concerning the use of periodic and frequent property valuation.
- Correlation assumption for different types of properties do not exist and the IRB formula is not specific to real estate but, rather, to corporate exposure and specialised lending.
- Although Basel is a global framework, it is implemented differently in every country.

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