



Commercial real estate loans facing refinancing risks

July 6, 2010

CMBS only part of a growing problem

Strong corrections in commercial real estate markets worldwide.

It was the sharp corrections in housing markets that triggered the financial and economic crisis. The vacancy rates of commercial real estate also rose, with rents declining markedly. At the same time, initial yields climbed strongly in some cases. In many locations, the trough has been passed in the last six months.

Loan defaults up sharply in the US. Since 2006, the default rate on commercial real estate loans has risen from about 1% to roughly 9%. Default rates on commercial mortgage-backed securities (CMBS) have increased from 1% in 2008 to currently around 7% (in the US).

Securitisation market with special risks. The CMBS market is a particular cause for concern, not only because there are major uncertainties about the size of the total market and maturity structures, but also because the atomistic investor structure makes a restructuring of debt via maturity extension much more difficult.

Risks concentrated on few countries. The strongest repercussions for the economy and financial services providers are likely to be seen in Ireland and Spain and, to a somewhat lesser extent, in the US and the UK. Germany has a worryingly large share of debt-financed, low-quality real estate with high loan-to-value (LTV) ratios.

Major impact on overall economy, but less than during the housing market crisis. First, the residential real estate markets are larger than the commercial real estate markets; second, primarily high-quality commercial real estate was securitised; and third, governments have taken precautions in the meantime to be able to handle further tensions.

Adjustment strategies: There is no "ideal" path. The objective is to reduce the share of debt capital in the real estate market, e.g. via stock market-listed equity vehicles. The revival of the securitisation market would be desirable but requires confidence-building measures.

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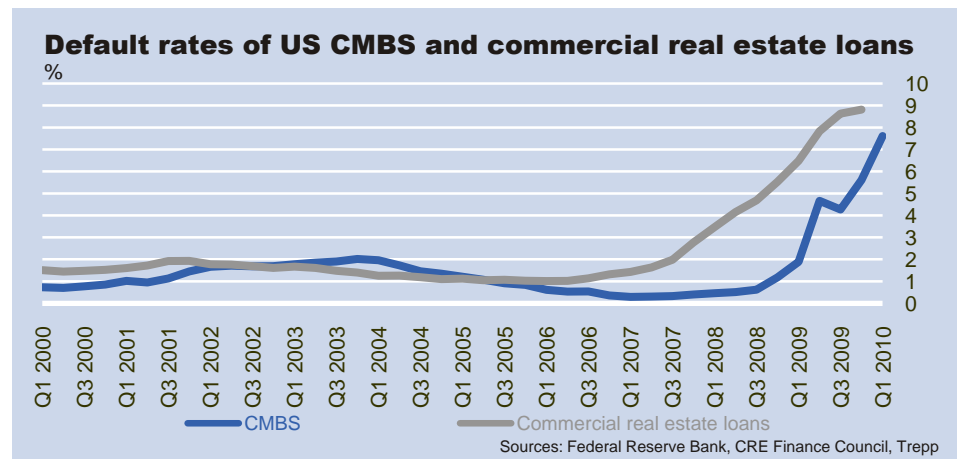
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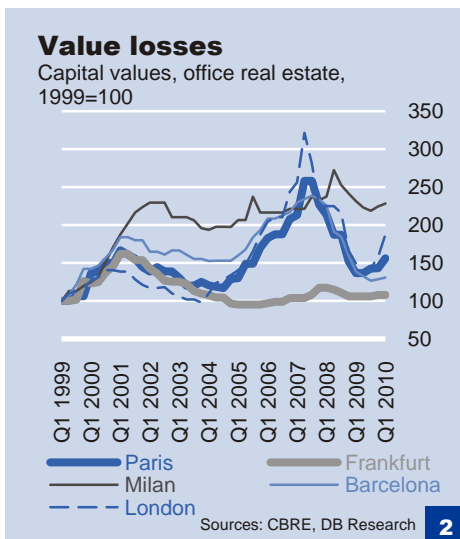
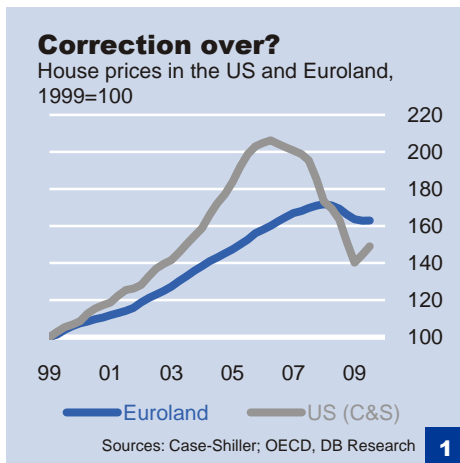
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Introduction



On the basis of the Case-Shiller Home Price Index, US house prices are gradually stabilising after having fallen by roughly 30% from their record high. However, a sizeable number of risks continue to face the real estate market. First, European housing markets tend to follow developments in the US market with a time lag¹; second, there are indications of growing imbalances in the Asian housing markets – in China and Singapore in particular.² Third, there have also been sharp corrections in the US and the European commercial real estate markets: in London, office rents dropped by over 30% from their peak, in Paris by 15%, in Barcelona by 25% and in Dublin by close to 50% no less. At the same time, the transaction market on both sides of the Atlantic basically collapsed in the first half of 2009 in particular, so purchase prices came under even greater pressure than rents. From the beginning of the crisis until its peak, yields climbed by 40 basis points (bp) in Frankfurt, over 250 bp in London and Paris, and in fact by over 300 bp in Dublin and Barcelona. In Q1 2010 the trend stabilised, after having already started to do so in London and Paris in late 2009.

Fourth, the real-estate boom was driven by extensive debt financing not only in the housing market but also in the commercial market. Having to refinance in a markedly poorer market environment is now becoming a further challenge. As in the subprime crisis, the price deterioration in the commercial real estate markets drove up loan-to-value (LTV) ratios, and lending standards were tightened simultaneously. This harbours far-reaching problems for equity investors and lenders. It is easy to see that an LTV of 75% and a 30% decline in the value of a commercial property in, say, London will give rise to an equity deficiency.³ Parkus and An estimate that about 65% of the commercial real estate loans underlying US CMBS will have refinancing difficulties at maturity.⁴ On top of this, tentative regulatory proposals will potentially increase the cost of lending.

The media, data services providers and analysts are scrambling to outdo each other with their doom-and-gloom forecasts. The *Handelsblatt*, a German business daily, claimed in its title story of February 15, 2010 that a new real estate crisis was looming in view of the refinancing volume of commercial real estate loans and commercial mortgage-backed securities (CMBS) outstanding.⁵ Data services provider Trepp announced that the CMBS default rate exceeded the 7% mark in March 2010 – albeit for bonds whose payments were 30 days in arrears and therefore still some steps away from default. There is much to suggest that the commercial real estate market is heading for a bottleneck. In this report we will analyse the extent of the macroeconomic risk facing the European commercial real estate market, i.e. how tight the bottleneck will be.

¹ See Just, Tobias and Thomas Mayer (2010). Housing markets in OECD countries:

² See Dyck, Steffen, Just Tobias and Sarah Hülser (2010). Asian property markets: No significant bubbles – yet! Current Issues. DB Research. Frankfurt am Main.

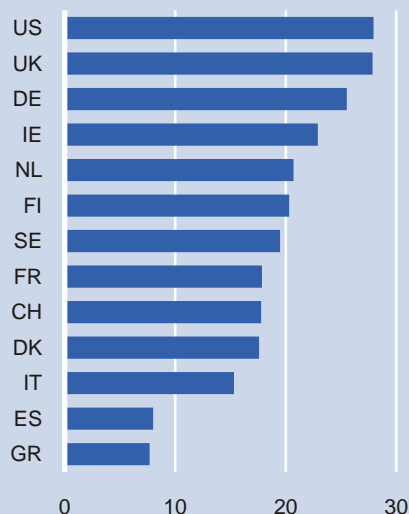
³ Fitch Ratings calculates that two-thirds of the underlying loans of European CMBS maturing this year have LTVs of over 80%.

⁴ See Parkus, Richard and Jing An (2009). The future refinancing crisis in commercial real estate, Part II: Extensions and refinements. Deutsche Bank GM Research.

⁵ We also refer to the *Handelsblatt* headline of April 15, 2010: "Einstürzende Neubauten" (Collapsing newbuilds).

Commercial real estate

Invested volume as % of GDP



Sources: RREEF, CIA Factbook, DB Research

3

Commercial real estate loans: The underestimated bubble?

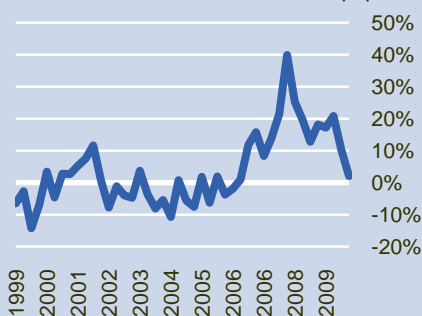
According to RREEF estimates, global investment in (commercial) real estate had a total volume of over USD 9 tr at end-2009, with Europe accounting for USD 3.3 tr and the United States about USD 4 tr.⁶ Besides the volume factor, there are striking differences in the significance of the (institutional) commercial real estate markets even between the industrial countries: invested (commercial) real estate volume in the US and the UK totals nearly 30% of GDP. At 25%, Germany trails not far behind. In many other countries of Western Europe, however, the share is still far below 20%. In most countries of Eastern Europe, in fact, the institutional real estate reading is less than 10% of GDP. One might say that these shares are a measure of the degree of professionalisation of the real estate investment industry in an economy, for the investment volume in the numerator factors in the invested funds of institutional investors.⁷ In a crisis, a high degree of professionalisation may have advantages and disadvantages: on the one hand, know-how is available, but on the other hand the risk is higher in cases where a large cohort of institutionals have leveraged their investments.

The default rates on US commercial real estate loans have skyrocketed since the beginning of 2007.⁸ The “good” news is that at least the growth rate has been falling for some time and in Q4 2009 it was back in the single digits for the first time since Q1 2007.⁹

Experience from the subprime crisis suggests that commercial real estate loans may also give rise to (re-)financing issues of macroeconomic relevance. At USD 1.7 tr¹⁰, US banks hold roughly half of all the commercial real estate loans issued in the US on their books. Commercial real estate loans total 24% of all bank loans outstanding. European banks have commercial real estate loans totalling some USD 2.6 tr on their books. With total commercial real estate loans accounting for close to 11% of total bank loans outstanding in Europe, the reading is much lower than in the US (24%). Of course, the share of real estate loans in total loans outstanding varies widely from bank to bank both in the US and Europe.¹¹

Growth of default rates

US commercial real estate loans, qoq



Source: Federal Reserve Bank

4

⁶ Figures on invested volume are always approximations. They provide a guideline. Estimates of other research houses are of a similar scale.

⁷ Commercial real estate that is not owner-occupied.

⁸ Such figures are not available for Europe.

⁹ Federal Reserve Bank statistics.

¹⁰ Federal Reserve Bank (2010). Flow of Funds. March 2010.

¹¹ Congressional Oversight Panel (2010). February Oversight Report. February 10, 2010 and ECB (2010). Monthly Bulletin. February 2010. p. 90.



Figures and key ratios denoting the economic importance of commercial real estate debt financing (USD bn)

	US	Europe	UK	DE
Total credit market				
1 Total loans	7,058	23,700	4,325	5,368
2 Total securitisations	9,579	2,619	860	125
3 Total credit market	16,637	26,319	5,185	5,493
Residential mortgage market				
4 RMBS volume outstanding	6,739	1,610	639	24
5 Mortgage loans from banks	3,026	6,773	1,379	1,337
6 Mortgage loans from others*	7,760	n.a.	n.a.	n.a.
7 Mortgage loans from banks as share of total loans	43%	29%	32%	25%
8 RMBS in relation to mortgage loans	62%	24%	46%	2%
9 RMBS share in total securitisations	70%	61%	74%	19%
10 RMBS share in total credit market	41%	6%	12%	0.4%
Commercial mortgage market				
11 CMBS volume outstanding	855	195	98	24
12 Commercial real estate - invested stock	3,987	3,308	612	826
13 Commercial real estate loans from banks	1,690	2,569	557	514
14 Commercial real estate loans from others*	1,693	n.a.	n.a.	n.a.
15 Mortgage-backed covered bonds (CBs)/Pfandbriefe outstanding	18	2,227	275	319
16 of which covered by commercial real estate	n.a.	n.a.	n.a.	128
17 CB/Pfandbriefe share in invested stock	0.45%	67%	45%	39%
18 Commercial real estate loans from banks as share of total loans	24%	11%	13%	10%
19 CMBS in relation to commercial real estate loans	25%	8%	18%	5%
20 CMBS share in total securitisations	9%	7%	11%	19%
21 CMBS share in total credit market	5.1%	0.7%	1.9%	0.4%
22 Commercial real estate loan share in invested stock	85%	78%	91%	62%
23 CMBS share in invested stock	21%	6%	16%	3%

* e.g. insurance companies, pension funds, GSEs

No. 1-14: Q4/2009, No. 1 UK: Q3/2008, No. 15/16: end-2008, US CBs: total outstanding at end-2009.

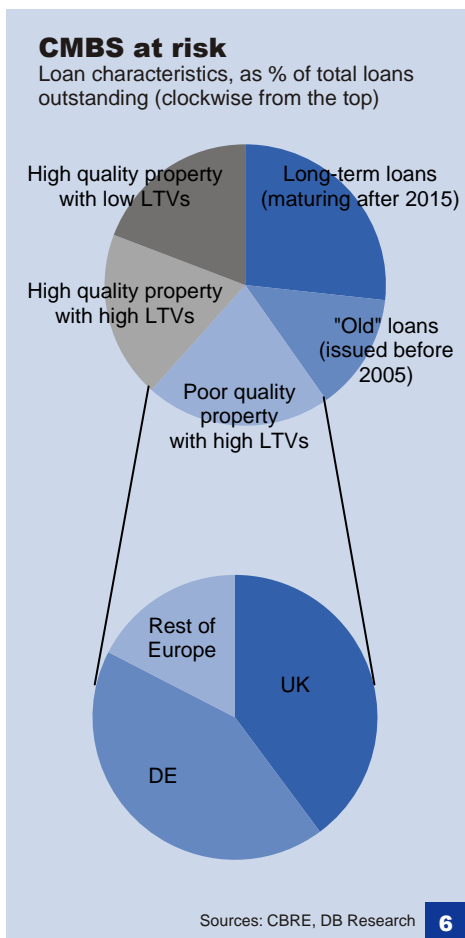
Sources: FDIC, ECB, Bundesbank, Bank of England, vdp, ECBC, RREEF, ESF, Federal Reserve Bank, DTZ, FFIEC, dealogic, DB Global Markets Research, DB Research

5

There are also substantial regional differences in terms of securitised commercial real estate loans: the CMBS volume outstanding accounts for 8% of commercial real estate loans in Europe, while the share in the US is roughly 25%.

A comparison with the residential mortgage market (see table 5) highlights that practically all indicators (7-10) are considerably higher than in the commercial mortgage market (18-21). This might suggest that the risk of turbulence for commercial real estate would be smaller than for housing; a similar chain reaction as in the course of the subprime crisis under otherwise identical conditions would proceed more favourably.

The consultancy CB Richard Ellis (CBRE) has calculated for the European commercial real estate market, however, that just over 20% of the loans outstanding fulfil three negative criteria: they were granted during the boom phase between 2005 and 2007; they already had high LTV ratios at the time of issue; and the quality of the real estate is low. Furthermore, CBRE takes a critical view of loans that feature good building quality but because of high LTVs at the time of issue have practically no more positive equity left. These



loans account for a further 20%.¹² Of the CMBS in the category with the highest default probability nearly 80% were issued in Germany and the United Kingdom. Therefore, particular interest must focus not only on the large US market and Europe but also on these two national markets. When commercial real estate loans are not securitised, LTVs, GDP and vacancy rates are considered to be significant determinants of default potential¹³, which is why we will focus more closely on these factors later on.

The financing structures of the regional commercial real estate markets vary considerably, particularly in terms of “capital market bias” (see section “How CMBS differ from other products” below). The subprime cascade on the international securitisation markets has underscored the explosive nature of the same. Therefore, we will start by paying special attention to the development of securitised commercial real estate loans. Even though the CMBS market is relatively small in relation to the total commercial real estate market, it is interesting because ultimately the absence of a regulatory framework paves the way to structurally higher default risk in times of crisis.

CMBS risks

CMBS: Definition and how they function

CMBS stands for commercial mortgage-backed securities, meaning securitised receivable assets using mortgages on commercial real estate as collateral. Securitisations are of two types: either “true sale” or synthetic. With true sale securitisation, a bank sells a package of loan receivables to a so-called “special purpose vehicle” (SPV). Full ownership is transferred to the SPV, meaning that the receivables – including all the related risks (credit risk, interest rate risk etc.) – are no longer on the bank’s balance sheet.

The SPV then issues bonds/debt securities (CMBS) on the capital market in order to fund the purchase of the assets. The SPV’s receivables are split up in tranches, i.e. divided into various risk/reward categories to serve differing investor interests. These tranches are assessed by a rating agency. The so-called senior tranche is the safest investment. By contrast, the junior tranche has to bear the initial losses. Payment defaults and returns are distributed according to the cascade principle, i.e. investors holding the junior tranche receive the highest return, but are also the first to feel the sting of defaults. After them come the investors who buy the mezzanine tranche, if any, and finally the senior investors. Typically, banks and SPVs are senior tranche investors. The mezzanine tranches are usually purchased by insurance companies, pension funds or other asset managers. The junior tranche is held in most cases by hedge funds, pension funds or other dealers/operators of actively managed funds, and in some cases also by issuers to indicate reliability.

The future payments (repayment of principal and/or only interest) do not flow to the bank that issued the loans, but to the CMBS

¹² See Pylypchuk, Iryna and Robin Hubbard (2010). European Commercial Real Estate Debt. Real Estate Finance ViewPoint. Spring 2010. However, the empirical indications that high LTVs are also linked with high default rates are by no means unambiguous. See e.g. Ambrose, Brent and Anthony Sanders (2001). Commercial Mortgage-backed Securities: Prepayment and Default. August 2001.

¹³ Igan, Deniz and Marcelo Pinheiro (2009). Exposure to Real Estate Losses: Evidence from US Banks. IMF Working Paper. April 2009. p. 5 and p. 12.



Securitisation market offers fundamental advantages

investors. This results in their participating fully in the success or failure of the real estate deal, depending on the tranche chosen. With a synthetic securitisation the loan receivables stay on the books of the lending institution. The credit risk (payment arrears, default – depending on the structure) is transferred to the SPV via credit default swaps.¹⁴ In addition, the investor assumes a counterparty risk since in the case of the bank's insolvency the insolvency practitioner can take recourse to the receivables on the bank's balance sheet. The funds obtained from CMBS issuance are taken by the SPV and partly invested in the credit derivatives and in lower-risk assets (e.g. sovereign bonds or Pfandbriefe/covered bonds).

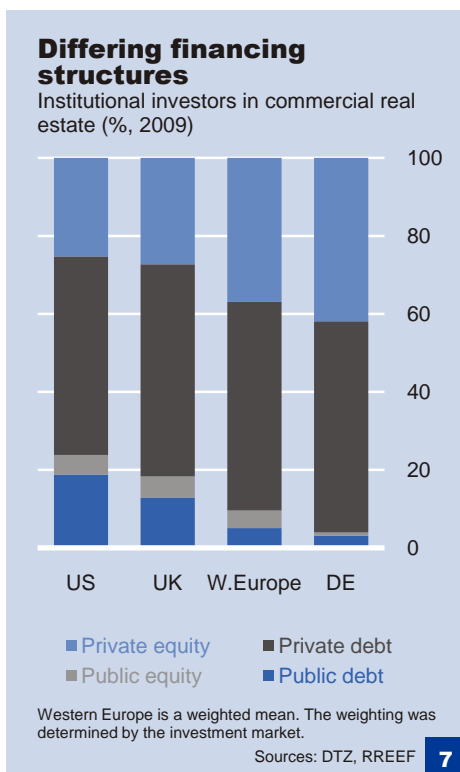
The illiquid and long-term nature of the (commercial) real estate market, combined with high transaction costs, means that if there is a macroeconomic shock it is not easy for supply to readjust in the short term and re-establish market equilibrium. In such cases, the role of CMBS is basically to help make the commercial real estate market more liquid and more transparent. At the same time CMBS offer improved risk allocation for issuers and investors. This way, more investors can participate in the comparatively illiquid, long-horizon market which would otherwise be the preserve of fewer investors. Moreover, investors can take more targeted action in new markets and thus diversify their investment risks. Risk is spread on more shoulders.¹⁵ However, this fundamental assessment implicitly requires that all market participants are able to adequately value the risks of a specific transaction ex ante and that as a result a particular transaction will fit well in an investor's overall portfolio. The fact that this does not apply without exception was rigorously shown by the subprime crisis.

How CMBS differ from other products

In the financing of real estate – as with other asset classes – distinctions are made between four categories: 1) private equity, e.g. via direct investment or portfolio funds; 2) public (tradable) equity, e.g. REITs or open-ended funds; 3) traditional loans (private debt), including mezzanine financing; and 4) tradable loan securitisations (public debt), e.g. CMBS, but also unsecured debt from real estate companies.¹⁶

It is striking that Anglo-American countries (in this context the US and the UK) attach much greater importance to funding with the aid of negotiable securities – both public equity and public debt – than continental Europe does. In Germany, these two categories (public equity and public debt) account for less than 5% of total investment volume. The UK reading is 18%, and the US is no less than around 23%.

In Europe, by contrast, covered bonds (CBs)/Pfandbriefe are an established refinancing instrument. Fundamentally, similarities exist between CMBS and CBs/Pfandbriefe. Due to a tight legal framework, however, CBs/Pfandbriefe are far more standardised and transparent than CMBS and this means that they usually trade on



7

¹⁴ See Weistroffer, Christian (2009). Credit Default Swaps. Current Issues. December 21, 2009. DB Research. Frankfurt am Main.

¹⁵ See Damaske, Martin (2009). Risikoaspekte bei der Verbriefung von Immobilienfinanzierungen. In Junius, Karsten & Daniel Piazzolo [Eds.]. Praxishandbuch Immobilienmarktrisiken. Cologne. pp. 337-361.

¹⁶ For more on this subject see e.g. Rottke, Nico (2008). Real estate between the poles of public and private debt and equity markets. In Rottke, Nico [Ed.]. Handbook Real Estate Capital Markets. Cologne, pp. 25-57.

smaller risk premiums.¹⁷ In contrast, CMBS are usually individual contractual agreements. Furthermore, with CBs/Pfandbriefe, the investor acquires a claim on the issuer and on the underlying asset (the mortgage loan); this gives it double backing. The CMBS investor, by contrast, only obtains a claim on the pool of receivables, and not on the issuer. This also implies that CBs/Pfandbriefe remain on the books of the issuer, whereas CMBS (at least in the case of true sale securitisations, which have increased in number over the past few years also in Europe) are carved out of the issuer's balance sheet. CMBS instruments enable tied-up capital to be released and thus broaden the scope of activity for their issuers.

Generally, the LTV ratio on CBs/Pfandbriefe is capped by law in Europe at 60-80%. Moreover, Germany's Pfandbrief legislation sets out high quality standards for the securitised receivables. Pfandbriefe are not split into tranches. These standards do not apply to CMBS.¹⁸ The higher CMBS default risk – on the junior tranches in particular – is attributable not least to the missing option of direct action between the investor and the bank.

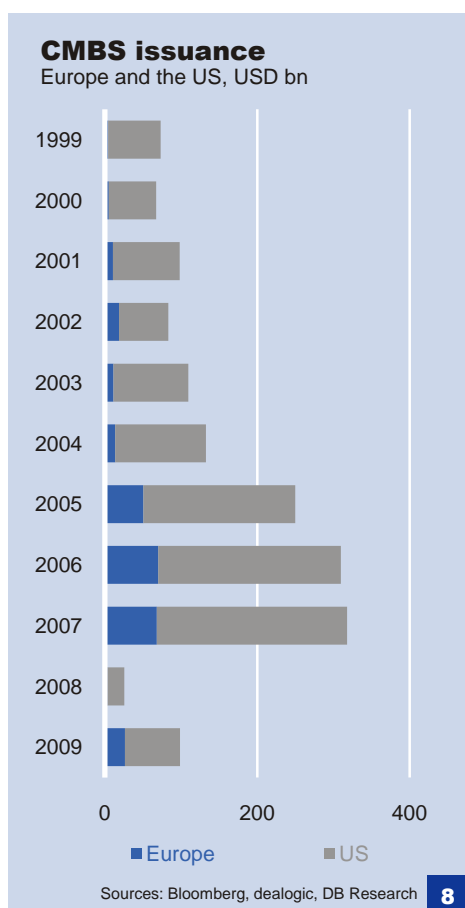
Development of the CMBS market

Global CMBS issuance hit a high in 2007 at a volume of USD 324 bn – five times the volume of the year 2000. The financial crisis resulted in a severe cooling of the securitisation market: in 2008, CMBS issuance was down to only about one-tenth (USD 25 bn) of the 2007 reading.

It was not until 2009 that the market showed signs of a slight recovery, though the issue volume was still two-thirds short of the 2007 peak. Europe and the US saw CMBS issuance totalling USD 98 bn; over 25% (USD 26 bn¹⁹) was issued in Europe. In 2003, the European share still totalled some 10%. So far this year USD 5 bn worth of CMBS have been issued in the US, and USD 2.1 bn in Europe.

The market saw annual average growth of around 46% in the US from 1991 to 1999, and roughly 17% from 1999 to 2007; in Europe, the annual expansion averaged 41% from 1999 to 2007.

At end-2009, the volume of CMBS outstanding ran to USD 195 bn in Europe, and USD 855 bn in America.²⁰ CMBS account for only a small fraction of the total securitisation market, though. In Europe, total securitisations added up to USD 2.4 tr at end-2009, and in the US to USD 9.4 tr.²¹ The CMBS share accounted for 7% and 9% of the market, respectively. For comparison: the European CB/Pfandbrief market (mortgage loans including residential building loans) had a volume at end-2008 of close to USD 2.2 tr, with issuance in 2008 totalling over USD 740 bn.²² Commercial real estate loans only play a significant role as collateral in Germany and Spain, though. The volume of the CMBS market also looks small in



¹⁷ For further criteria distinguishing between Pfandbriefe and CMBS see for example Lorenz, M. & T. Stephan (2008). German Pfandbrief versus MBS. In Rottko, Nico [Ed.]. Handbook Real Estate Capital Markets. Cologne, pp. 277-296.

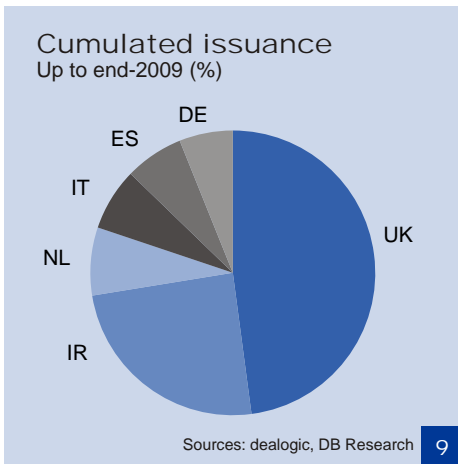
¹⁸ Since Germany's mortgage bank legislation came into effect in 1900 there has not been a single default on a Pfandbrief (see Rudolf, M. & A. Saunders (2009). Refinancing real estate loans – lessons to be learned from the subprime crisis. WHU and New York University. p. 42.).

¹⁹ USD values pertaining to European data were determined using average exchange rates for the respective year.

²⁰ See European Securitization Forum (2009). Data Report Q4/2009 and Federal Reserve Bank (2010). op. cit.

²¹ European Securitization Forum (2009). op. cit.

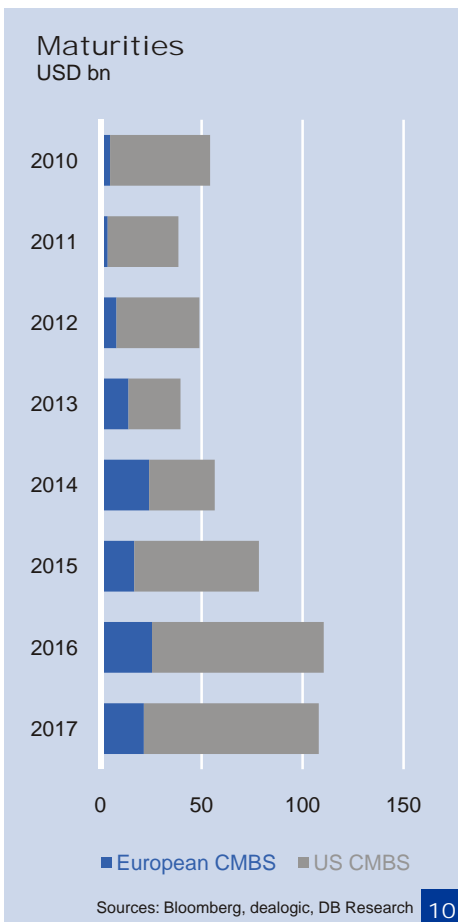
²² ECB. Data for 2009 will be published in July 2010.



comparison with the total commercial real estate financing market, and particularly when set against the housing market. Both residential housing loans and the related securitisation segment account for larger shares of the total credit market.

Regions

The overwhelming majority of CMBS issues are still originated in the US, where the market has been developing since the early 1980s. The first non-US CMBS instruments were issued in 1989 in Europe (in the Netherlands and shortly afterwards in the United Kingdom) and the Caribbean (Dutch Antilles). The share of US issuance in the global CMBS market has declined on the growth of CMBS markets in Europe and Asia (Japan in particular). At the peak of CMBS issuing activity in 2007 the US share was down to “only” a little less than 73%. The European CMBS market is dominated by the United Kingdom and Ireland. These two countries account for nearly 70% of cumulated CMBS issuance in Europe.



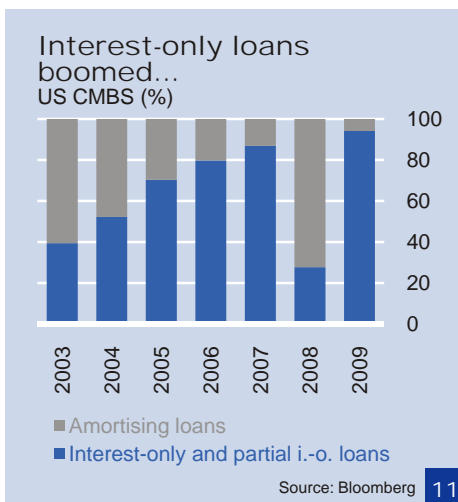
CMBS maturities – financial crisis, Act II?

When a CMBS transaction matures the loans have to be refinanced, depending on how much has already been amortised. In line with the given structure (interest-only loans, partial interest-only loans, amortising loans), this gives rise to a more or less pronounced refinancing risk for the bank/lender and a “maturity risk” for the bond-holder. Various factors may lead to the failure of a refinancing move: the value or the rating of the collateral may have deteriorated owing to changes in demand, changes in income streams from the property and/or changes in the capital market, meaning that the risk premiums may increase. If there are not enough buffers available, this can make refinancing economically unattractive.

The probability of refinancing proving to be more difficult increases if credit standards at the time of issue were laxer, the subordination level of the receivables was lower and/or none or only part of the principal has been redeemed. The share of interest-only loans or partial interest-only loans securitised in CMBS has strongly increased over the past few years. In 2009, it totalled 100% in European CMBS issues (2003: 31%) and 94% in American CMBS issues (2003: 39%).²³ If the loans cannot be repaid at maturity or refinanced, the following possibilities may be considered:

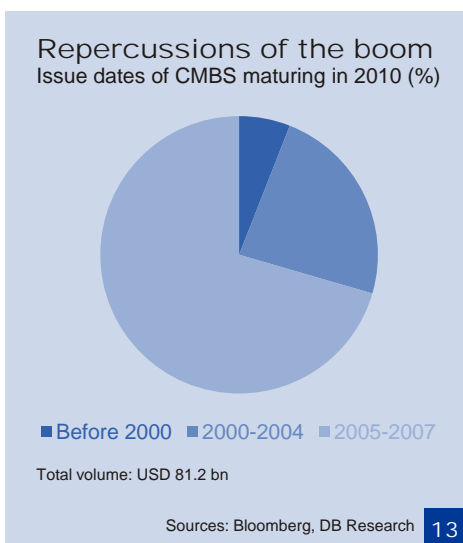
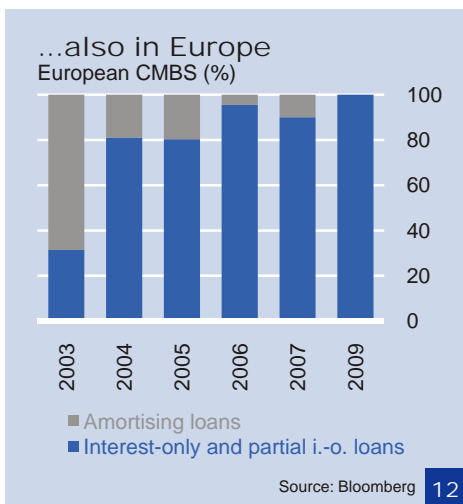
1. Use of an extension option,
2. Equity infusion from the borrower,
3. Negotiation of an extension of the loan and/or bond maturity and, as necessary, of other conditions,
4. Refinancing via other instruments (e.g. CB/Pfandbrief, equity financing, e.g. real estate funds/real estate investment trusts (REITs), private equity companies),
5. Default and asset liquidation.

In principle, it is possible to restructure or extend both loans and bonds. All in all, little experience has been gained with extensions, at least in continental Europe, and the documentation of the transactions is patchy at times, which makes this solution more difficult and more expensive. Extending or restructuring loans is usually easier than extending CMBS, and this has already been done with several transactions.²⁴ In plans for bond extensions it is



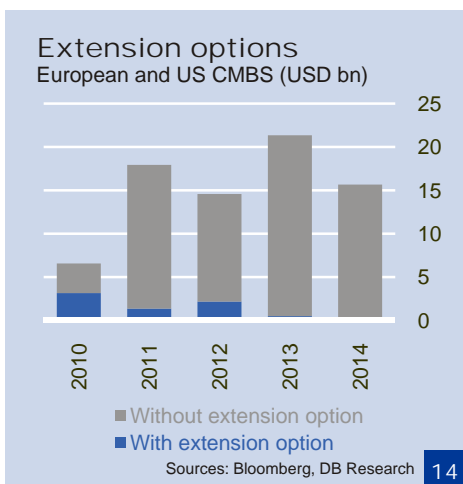
²³ Bloomberg and DB Research calculations.

²⁴ Fitch Ratings (2010). European CMBS Loan Maturity Bulletin. March 2010.



Interest-only loan

An interest-only loan is structured in such way that during its life only interest payments fall due. The loan is redeemed in a lump-sum payment at maturity. With partial interest-only loans, a part of the principal is repaid during the life of the loan, but the bulk is repaid upon maturity. This type of structure has the advantage for borrowers that they carry a small burden during the life of the loan. For the lender this gives rise to a higher repayment risk.



necessary in some cases – depending on the contractual details – to secure the agreement of hundreds of investors. To date, this has been achieved in Europe on merely one transaction. The costs of restructuring must be borne largely by already struggling borrowers anyway. The more equity an investor has pumped into the real estate, the higher will be the interest in a restructuring. “Reputational costs” also play a role when deciding whether or not to pursue restructuring.

So when the securitised commercial real estate loans from the boom years 2005-2007 fall due in the coming years, it is to be feared that a second phase of the crisis will occur, triggered this time by defaults on commercial real estate loans. The maturity estimates are based on various sources with partly inconsistent data, which is a decisive and often unmentioned weak point in the commercial real estate market as a whole.²⁵ Some 70% of the bonds falling due in 2010 were issued between 2005 and 2007. This is a further crucial point, for there is more likelihood of their underlying loans in particular having an equity deficiency at the time of refinancing since most of the above-mentioned criteria apply.

US maturities

Some 88% of the CMBS maturing in 2010 were issued in the US. This year alone, CMBS instruments worth USD 71 bn will fall due, while a total of about USD 150 bn is on the cards up to and including 2013, corresponding to nearly one-fifth of the total outstanding. However, roughly 53% of the CMBS maturities in the US this year feature an extension option. In the years 2011 through 2013 this share will total between 10% and 14%, slipping subsequently into single-digit percentages. The risk of non-extension is likely to increase in these years as a result. Moreover, it is unclear whether those securitisations that need an extension option because their underlying loans will have refinancing difficulties do actually have this option.

European maturities

About 10% of the CMBS maturing this year were issued in Europe.²⁶ Up to and including 2013 over USD 30 bn worth of CMBS will fall due, the equivalent of 15% of the total outstanding – in this respect the volume is on a par with the US market.²⁷ By 2020, CMBS worth a further USD 135 bn will fall due. In 2010, over 47% of the maturing CMBS will have an extension option; in 2012 the share will be close to 15%; and in all other years the percentage will be in the single digits.²⁸

²⁵ These differences are due to the fact that data services providers such as Bloomberg, dealogic and Trepp obtain their data from the lead managers in CMBS transactions. Rating agencies also have data at their disposal, but only from the transactions that they have valued. Apparently not every lead manager reports every transaction to every data services provider, resulting in different issue sizes and maturity volumes being posted. Therefore, it seems plausible that the data services provider registering the highest issue volumes is also in possession of the more reliable maturity data (as it is more extensive). Regional differences can be observed: dealogic (based in London) reports slightly higher European CMBS issuance than Bloomberg (based in New York). Conversely, Bloomberg reports higher US CMBS volumes than dealogic. Therefore, maturity analyses for European CMBS were largely based on dealogic data, and for US CMBS on Bloomberg data. There is a highly mixed assortment of data available for European CMBS in particular.

²⁶ Bloomberg.

²⁷ Dealogic.

²⁸ Bloomberg.



The overall economy and CMBS

Who is under particular pressure?

To be able to better assess the potential macroeconomic burdens in the years ahead it makes sense to structure the potential risk factors. We have done so by looking at seven OECD countries as examples. The risks may be classified in three groups: first, risks that emerge from the financing structure; second, risks that are rooted in real estate market developments; and third, risks that ensue from macroeconomic developments. It is only natural that these three groups are linked with one another, since the macroeconomic burdens result in part from the other two risk groups.

With regard to financing structures, the overall volume of commercial real estate loans outstanding and also the volume of CMBS outstanding are potential risk indicators. Going by these measures, the biggest risks lie in the UK, Germany, Ireland and the US. In the Anglo-American countries the high degree of professionalisation in the sector – expressed here by the share of invested commercial real estate volume in gross domestic product (see chart 3) – could slightly mitigate the risk insofar as professional investors are able to handle risks properly. However, we rate the first two risk factors as being much higher than the damping influence of the degree of professionalisation, one reason being that the crisis highlighted the patchy risk management of numerous professionals.



15

Risks from commercial real estate financing for the overall economy

Last available data used. Markets with particularly high risk are shaded accordingly.

		US	UK	DE	FR	IE	ES	IT
Commercial real estate loans in % of GDP		11.9%	25.6%	15.4%	4.6%	19.5%	9.3%	1.8%
CMBS share in commercial real estate loans		25.3%	17.6%	4.6%	3.8%	3.7%	0.7%	9.1%
		NY	London	Frankfurt	Paris	Dublin	Madrid	Milan
Rise in office yields since crisis began	from trough to peak	230 bp	250 bp	40 bp	265 bp	375 bp	225 bp	100 bp
	from trough to Q1 2010	230 bp	125 bp	30 bp	165 bp	375 bp	200 bp	95 bp
Decline in office rents since crisis began	from peak to Q1 2010	-27.2%	-27.0%	-3.0%	-12.0%	-44.1%	-28.5%	-5.5%
Degree of professionalisation*		27.9	27.9	25.5	17.8	22.9	8.0	15.3
Rise in vacancy rates since crisis began	from trough to Q1 2010	100 bp	520 bp	100 bp	220 bp	1230 bp	385 bp	70 bp
GDP 2010 (% yoy)		3.8	1.5	2.0	1.7	-0.6	-0.4	0.8
GDP 2011 (% yoy)		3.5	2.5	1.3	1.1	1.5	0.7	1.1

* The degree of professionalisation is calculated as the share of the institutional investment market in gross domestic product.

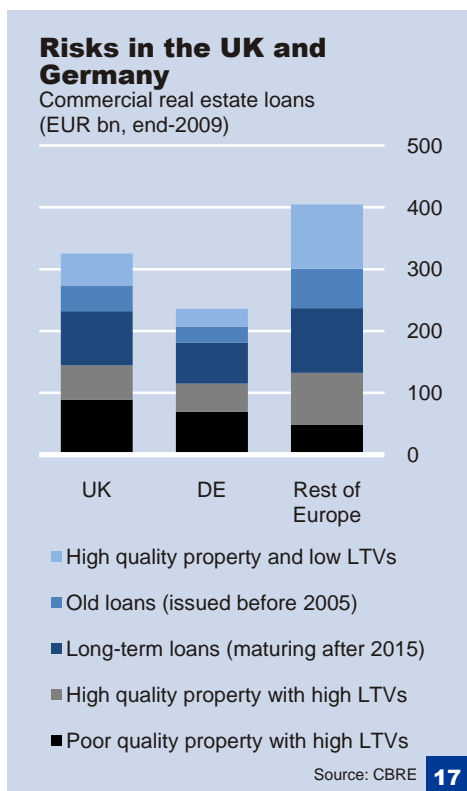
Since no figures were reported explicitly for commercial real estate loans in most of the countries it was assumed that they account for 30% of total real estate loans.

Sources: CBRE, Bloomberg, DB Research, IHS Global Insight, national central banks, INSEE, national statistical offices

16

The risk assessment is also backed up by the study conducted by consultants CB Richard Ellis already cited above.²⁹ The authors group all of the commercial real estate liabilities into five categories; they deem pieces of real estate with high loan-to-value ratios as

²⁹ See Pylypchuk, I. and R. Hubbard (2010). op. cit.

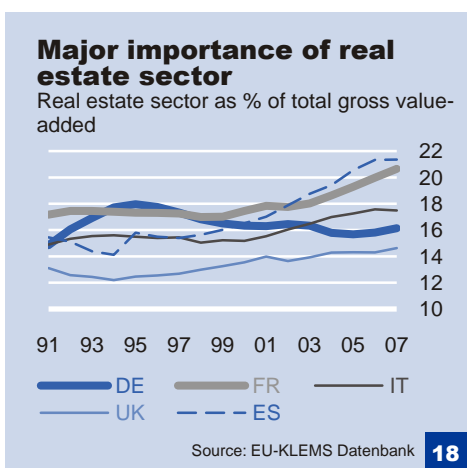


particularly risky – especially those, of course, that are considered to be of inferior quality. In Germany and the UK nearly 30% of all loans fall into the category that carries the heaviest risk – poor-quality real estate and high LTV ratios. In the other European countries the share only slightly exceeds 10%.

Naturally, the volume of the credit market is only one part of the risk equation. A rise in defaults is most likely to be expected in areas in which the economic crisis heavily impacted demand over the past few quarters and thus rising vacancies weighed on rents. If at the same time very high prices had been agreed at the top of the last boom in the cycle, the potential selling prices may in fact plunge further than rents.

The office vacancy readings in all the cities examined are indeed in some cases substantially higher than the pre-crisis level. The increase was moderate though at 100 basis points in Frankfurt, Milan and New York; it hit hardest in Madrid, London and especially Dublin.³⁰ Rising vacancies also indicate greater supply to meet demand for office space, i.e. rising vacancies usually go hand in hand with falling rents. This increases the pressure on landlords and consequently also on creditors. In fact, rents in Dublin plunged by over 40%, in London by close to 35%, and in Madrid and New York by about 25% after the outbreak of the crisis.

This suggests that the risk of current rent income not sufficing to service interest commitments has increased considerably in Spain, Ireland and, to a smaller extent, also in the UK and the US. The more favourable outlook for the UK and the US is also very much due to their better growth prospects, i.e. their chances of gradually “growing out” of the crisis are higher than those of the two smaller countries. Office rents in Paris and London did actually edge up towards the end of 2009; this has been the case in the other cities since the beginning of 2010. However, correction processes in real estate markets proceed very slowly: during the last upswing it took over ten quarters for office rents in London to regain their pre-recession level – and this only takes account of the quarters with an increase – not the 13 quarters of decline or stagnation that preceded this recovery. In other words, considerable staying power is required even for the US and UK markets; the risks will not disappear overnight.

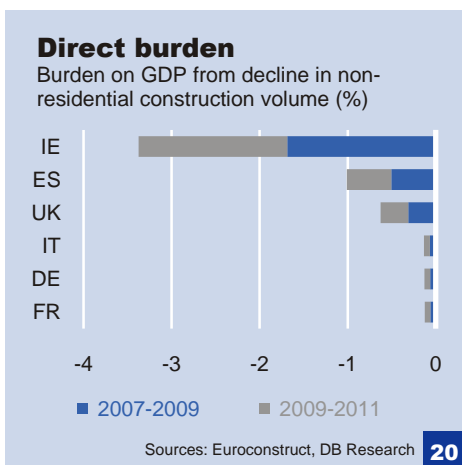


Will the subprime crisis be followed by a CMBS crisis of similar dimensions?

These developments weigh on macroeconomic growth in several ways. Some of the transmission channels are comparable to those seen during the subprime crisis. For this reason it is worthwhile asking: how serious are the effects? A first indication can be gleaned from the share of the real estate industry in gross value-added: in Germany, the reading comes to about 16%, while in Spain and France it is well on the high side of 20%³¹, and in the United States it is also about 20%.³²

³⁰ However, it must be kept in mind that the selection of cities shown here illustrates only one section of the macroeconomic risks. In Frankfurt, the vacancy rate increased (in absolute terms) at a pace similar to that in other major German cities; in New York, this increase was far below average; in San Francisco and Chicago the vacancy rates jumped by over 500 bp, and in Washington in fact by 1000 bp.

³¹ The commercial real estate market generates about 50% of gross value-added in the real estate industry in Germany (see Gif (2009). *Wirtschaftsfaktor Immobilien*. 2009. p. 60). The data were sourced from the EU KLEMS database. The economic activities in our focus were Construction and Real estate activities (classified statistically under NACE 45 and NACE 70 in the earlier NACE Rev.1.1).



Equity ratio of banks

Country	Equity ratio (%)
DE	5.09
IE	5.39
EU-27 average	6.41
UK	6.82
US	11.20

Sources: ECB, DB Research, BoE, FDIC **21**

The macroeconomic burdens can be divided into three groups:

1. Direct implications for the construction industry: if demand for commercial real estate declines, loans for new building projects become more expensive as, naturally, default risk increases. This weighs on building activity. The weight of this burden hinges partly on how much non-residential construction contributes to overall gross domestic product and on how much of a decline is registered in this segment. In 2007, i.e. before the crisis, the share of non-residential construction ranged from close to 3% in Germany to nearly 5% in Ireland. The share in GDP of non-residential construction was much smaller in all countries than the share of residential construction.³³ In most cases, residential construction output also fell more heavily during the crisis than did non-residential construction – exceptions being in the UK and Ireland. All in all, the direct negative momentum for the overall economy is only significant for Ireland and Spain at a cumulative 1-3 percentage points. Although multiplier effects have not yet been factored in, it is clear for all countries that this direct negative factor has a much smaller impact than what came from corrections in the residential markets.
2. Wealth effects: Potential defaults or writedowns on securitised real estate loans naturally affect CMBS investors or other creditors and owners of commercial real estate in general. In the main these are financial services providers (banks, insurance companies and fund managers). The first to feel the impact are the holders of junior tranches; more often than not these are hedge funds, pension funds and other actively managed funds. Depending on how they are invested in such vehicles, households suffer asset losses and/or income losses that lower their consumption and their allocations to savings in the future. The repercussions from these wealth effects are probably minor, however, because of the comparatively small size of the asset class. In individual cases, if the investment risks are highly concentrated, heavy losses are of course possible. The lack of transparency makes it more or less impossible to calculate the potential losses for the various regions because of course the country of the issuer and of the collateral are not necessarily the same as the country of the investors.

Resilience of the financial sector: Increasing vacancies and falling rents on commercial real estate mean that some borrowers will no longer be able to service their loans or refinance them upon maturity. In the case of non-securitised commercial real estate loans this impacts the lending institution, which has to make risk provisions for such events. The degree to which higher risk provisioning weighs on a bank depends on its earning power and its equity capital resources. In the case of securitised commercial real estate loans the individual investor – in most cases also banks or other financial market participants – is affected. This is a key aspect: ultimately, the risks arise from corrections in the real estate markets of a number of specific

Voigtländer et al. also look at financial intermediation and this raises the share by about 3 percentage points (see Voigtländer et al. (2009). Wirtschaftsfaktor Immobilien. Die Immobilienmärkte in gesamtwirtschaftlicher Perspektive. In Zeitschrift für Immobilienwirtschaftliche Forschung. Sonderausgabe 2009).

³² Bureau of Economic Analysis and DB Research calculations.

³³ In fact, the negative shock is even overrated, since public-sector construction is also classified under non-residential construction and it is hit much less severely than commercial construction during cyclical downturns.

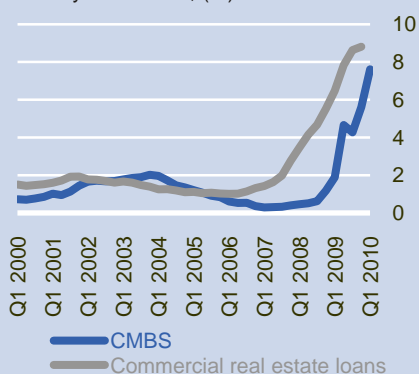
What is a spread?

In this case, a spread refers to the yield premium demanded on a CMBS placement in comparison with an investment considered to be practically risk-free (e.g. a sovereign bond with a top rating). The spread is given in basis points and reflects the risk linked with the investment. However, the spread depends not only on the rating of the asset but also on other factors such as liquidity in the market segment, the equity market, the economic cycle, general interest trends and the risk appetite of the market participants. In a financial market crisis the spreads generally widen because the market participants demand a higher premium for the perceived increase in risk. These spread fluctuations may occur regardless of the credit quality of the underlying and this phenomenon is designated as spread risk.

countries (see above); however, where the distortions in the financial sector actually materialise and possibly impact lending to companies depends on where the lender/investor is domiciled. The actual risk position can only be determined by individually analysing the portfolios of the respective financial institutions. In the case of securitised commercial real estate loans, the corresponding investors are affected. The main difference between “normal” commercial real estate loans and securitised commercial real estate loans is that with “normal” loans there are usually two contracting parties who know each other and who can communicate and negotiate with one another. With securitised loans there is an SPV on one side and, in some cases, hundreds of investors on the other. This increases the complexity of negotiations if payment difficulties arise. The recent loss of confidence in ratings, the concern over underlying assets of securitisations in general and the resulting illiquidity in the CMBS market triggered spread widening (see box). So for issuers it became more and more expensive to refinance commercial real estate loans via CMBS. This resulted in more stringent lending standards. In turn, these developments led to a sharp drop in public CMBS issuance in 2008 and 2009. Since 2008, CMBS transactions have largely been used – like many other securitisations of receivables – for repurchase agreements with central banks. While net lending to finance commercial real estate rose by about 10% in the US in both 2007 and 2008, it fell by close to 3% in 2009.³⁴ In Germany, commercial real estate lending increased slightly by 0.5% yoy in 2008 and 0.7% in 2009.³⁵ Thus “fresh supply” for securitisations was not abundant.

Comparison of default rates

30 days in arrears, (%)

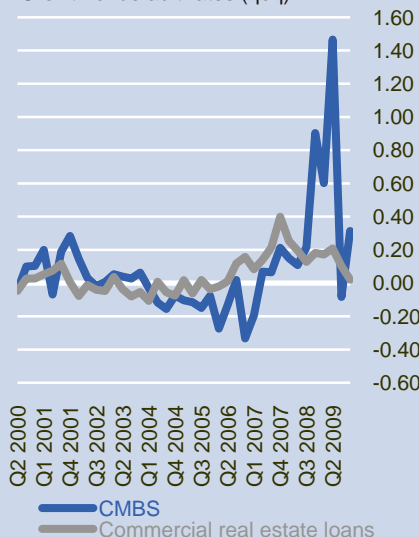


Sources: Federal Reserve Bank, CRE Finance Council, Trepp

22

CMBS default rates increasingly volatile

Growth of default rates (qoq)



Sources: Federal Reserve Bank, CRE Finance Council

23

The commercial mortgage-backed securities (CMBS) market has several advantages over the residential mortgage-backed securities (RMBS) market in times of crisis: unlike with securitisations of residential building loans, in which one party (the household) as a rule has less professional knowledge and less information on the real estate market at hand, the contracting parties to CMBS transactions are, as a rule, professionals. This may have positive implications in the event of a restructuring or liquidation. On the other hand, a disadvantage may arise if decisions are taken on the basis of short-term yield expectations. Apart from this, in the case of US CMBS usually higher-value loan receivables were securitised, whereas in the case of RMBS there were many securitisations of subprime loans. At the same time, this suggests that commercial real estate loans that are more at risk of default tend to be found directly on the banks’ balance sheets, and apparently on those of smaller, regional banks in particular.³⁶ So when the equity capital requirements for riskier commercial loans increase and/or securitised loans have to be taken onto the bank’s own books, this will naturally constrain the scope for loans to other companies. This could reduce the investment activity of the industrial sector.

Furthermore, it looks as though the CMBS default rates “track” those of non-securitised loans, as shown by the accompanying comparison of US commercial real estate loans and US CMBS that are 30 days overdue. This would mean that CMBS defaults might increase further even in cases where the markets for commercial real estate loans have started to settle and the related default rates are already declining. Moreover, it may be observed that default

³⁴ Federal Reserve Bank (2010). L.219 and L. 220. op. cit.

³⁵ Bundesbank, Bankenstatistik.

³⁶ Congressional Oversight Panel (2010). op. cit.

rates on US CMBS have become more volatile over the past few years than those of commercial real estate loans; the fluctuations both to the upside and to the downside have been very pronounced over the past few years.³⁷ All in all, the risks in the third category are likely to be the most extensive because of the “infrastructure function” of the financial sector. For this reason, any attempt to address the problem must start here.

Regulatory issues

State intervention in the CMBS market can be found on several levels at present:

1. Central bank asset purchase programmes³⁸ are resulting in artificial stimulation of the mortgage-backed securities market. When the purchase programmes expire in the course of 2010 (Fed: March/June, ECB: July), analysts expect to see a widening of spreads, at least over the short term. The Federal Reserve Bank has invested a total of USD 1.25 tr in MBS purchases as of end-March 2010.
2. The central banks relaxed the guidelines for assets eligible as collateral for repo transactions, which included CMBS. Banks increasingly used this option to obtain liquidity.
3. At the national and the international levels regulatory plans are being discussed which will have direct or indirect implications for the CMBS market and commercial real estate financing. Regulatory proposals pertaining to, for example, capital, retention and liquidity rules for issuers as well as the already valid EU regulation for rating agencies will have a curbing effect on the market.

The amendments to the so-called Capital Requirements Directives (CRD: 2006/48/EC and 2006/49/EC) by means of Directive 2009/111/EC provide that credit risk may only be transferred by securitisation if the issuer retains at least 5% of the material net economic interest of the securitised assets. In turn, the issuer must set aside own funds to back the assets held. This causes additional costs and makes a securitisation more expensive. However, this only holds true if the issuer has been using the originate-to-distribute model up to now, i.e. has sought to completely derecognize the loan receivables from his balance sheet. This model was not applied by continental European institutions in the same way as in the US anyway, which is why it may be presumed that investors in European securitisations will see little change. On April 7, 2010, the US Securities and Exchange Commission (SEC) presented proposals for increased disclosure of information on receivable assets that are securitised. Furthermore, it is to become mandatory for issuers to retain a net share, as in the European model. In addition, in keeping with an amendment to the FAS 166 and 167 accounting standards, US banks will have to transfer part of their securitised assets back to their balance sheets from 2010 and underpin them with own capital accordingly.

³⁷ For Europe, such comparisons have not been possible to date because of a lack of publicly available data.

³⁸ Federal Reserve Bank (Term Asset-Backed Loan Facility (TALF) for asset-backed securities (ABS) in general) totalling USD 200 bn and ECB (for CBs/Pfandbriefe) totalling EUR 60 bn.

In consultations on further changes to the CRD of July 2009 and February 2010 the European Commission has already signalled that in future it wants to place a preferential risk weighting under more stringent conditions (lower LTVs in particular) when the capital requirements for (residential and commercial) real estate loans are being calculated. This would increase the cost of commercial real estate lending.

Conclusions

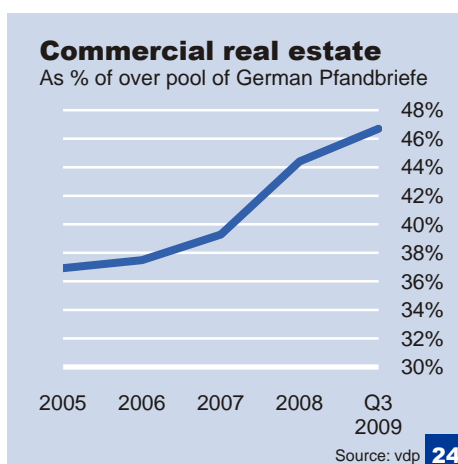
Everything suggests that commercial real estate financing is heading for a bottleneck: large debt volumes will require refinancing over the next few years when refinancing conditions will have deteriorated in the face of a regulatory environment that tends to push up related expenses. The bulk of the commercial real estate loans to be refinanced in Europe is conventional private debt business. In addition, major CMBS transactions are due for refinancing in the UK and Ireland in particular, and naturally also outside Europe in the US.³⁹ In past crises, the trough of defaults on commercial real estate loans was reached about 15-25 months after the trough of the overall recession.⁴⁰ This time lag is plausible, since the number of corporate insolvencies frequently also continues to rise even after the recession is over.

While the economic recovery will help spreads to narrow further over the coming months⁴¹, it will not mitigate the pressure on the commercial real estate market (and correspondingly higher LTVs) until sometime in the medium term. In addition, the supportive intervention in the shape of central bank asset purchase programmes will only be available for a short while longer, which in turn might tend to exert upside pressure on spreads. The critical refinancing window for European CMBS is between 2011 and 2013. This is when – for the first time in European CMBS history – sizeable loan volumes will mature, and it is still too early to see to what extent the rental and investment markets will have recovered by that point in time. The fact that they will have recovered in comparison with recession year 2009 is largely undisputed. However, it is unlikely that the high rents and prices of the boom years can be reached again quickly. The risk lies precisely in this gap.

Outlook: Several strategies make sense

To ensure that further difficulties in the financial markets can be avoided it is necessary to pursue several strategies at once. This holds for investors, banks and regulatory authorities.

1. The regulatory changes towards higher capital requirements should not be implemented too early, also with regard to the commercial real estate markets, so that the upswing in the rest of the economy is not choked off. This would have severe consequences because economic growth is also the best way, via demand, to stabilise rents and prices on the commercial real estate markets.



³⁹ Quite apart from that aspect, commercial real estate loans are not the only assets that will have to be refinanced over the next few years. M&A financing totalling approximately USD 700 bn in volume will also fall due in the years ahead. (See *Börsenzeitung*, February 9, 2010, p. 13).

⁴⁰ Standard&Poor's, 23.2.2010.

⁴¹ See Heidorn, Thomas & Mathias Pleißner (2008). *Determinanten europäischer CMBS Spreads*. Frankfurt School Working Paper No. 101. 2008.



Alternatives for the US commercial real estate market

In the US, plans are afoot to set up a legal foundation for covered bonds (CBs). There have been isolated cases of CB issuance in the US (stock outstanding currently totals close to USD 18 bn), albeit without the benefits inherent in standardisation on a legal basis (cost reductions in particular). In the case of a CB/Pfandbrief issue, the assets are not carved out of the balance sheet of the issuing institution, i.e. the aspect of equity relief does not apply here. Since November 15, 2009, US accounting standard 166 (FAS 166) has been in force compelling US banks to retrieve parts of their securitised assets spun off into SPVs and to take them on their balance sheets. A Congressional committee report puts the CMBS volume to be returned at about USD 900 bn. This will reduce the scope for derecognizing loans from bank balance sheets. For this reason, refinancing via CBs/Pfandbriefe appears to be an attractive alternative.

From 2012, US banks are also finally required to apply the Basel II rules on capital requirements. Initial proposals on Basel III are already under discussion and will tend to contain stricter rules on the capital base.

The final shape of the legal foundation for CBs in the US will presumably have little in common with Germany's Pfandbrief law. Securitised positions (ABS and MBS) are also to be eligible up to a share of 20% of the total securitisation volume. Apart from this, the US Federal Deposit Insurance Corporation (FDIC) has, for now, not placed a limit on the volume of CB issuance for institutions insured with the FDIC. This suggests that the Pfandbrief volume may not total any more than 4% of a bank's overall liabilities in order to ensure that the deposits of investors who have not invested in CBs do not become overly "subordinate". So according to current data, this caps the Pfandbrief volume at just over USD 400 bn.

2. Stabilisation of the securitisation market. As long as the CMBS market fails to rebound adequately, the CB/Pfandbrief market could help vent part of the pressure from the refinancing volume. Given the high standards for CBs/Pfandbriefe, however, this holds especially for the segment of particularly low-risk real estate loans. National laws and also the CRD (an LTV of 60% at most for commercial real estate) set narrow limits in this area, for which many commercial real estate loans securitised in CMBS are not, or only partly, likely to qualify.⁴² It is precisely the loans with high LTVs that require alternative refinancing, since they can currently only be placed on the securitisation market with high spreads which would be out of the question as cover for CB/Pfandbrief securities. Quite apart from that, there are also sizeable refinancing volumes falling due in the CB/Pfandbrief market itself⁴³, so the absorption capacity here also appears to be limited. The pick-up in the CB/Pfandbrief market during the crisis and above all the increase in the share of commercial real estate loans in the cover pool of German Pfandbriefe show that substitution potential exists between the CMBS and CB/Pfandbrief markets. Of course, it is not a simple demand that a revival of the CMBS market would be a sensible way of overcoming the financing problems in the commercial real estate market. It is closely linked with the need for higher transparency (see the following as well).
3. More equity capital. Obviously, a key part of the problem is that a host of real estate transactions were funded with a (too) large amount of debt. Over the coming years attention will have to focus on gradually bolstering the capital requirements of real estate financing. There are various types of real estate investments listed on the stock market which are a particularly suitable option. In Germany, an amendment to the REIT legislation is up for debate. The REIT market in the United States did not pick up very noticeably until the 1990s when a real estate crisis struck and sensible adjustments were made to the REIT legislation.⁴⁴
4. In many cases a maturity extension can be hammered out between lenders and borrowers. Naturally, this is easier with normal commercial real estate loans than with securitisations. However, it is also possible with CMBS transactions, as documented by initial experience.⁴⁵

In the medium term it will ultimately be necessary for both the commercial real estate market as well as the real estate credit market to achieve a higher level of transparency. Among other things, this pertains to better statistical records and communication of transaction volumes, prices and conditions. Greater transparency is urgently required for the securitisation markets in particular. This is already underscored by the fact that the data providers cannot even agree at present on the size of the past CMBS issues or of the total volume outstanding. In this context, a cornerstone has now been laid in the US: the SEC accepted a regulatory proposal from the Financial Industry Regulatory Authority (FINRA) on February 22,

⁴² See ECB (2008). *op. cit.* According to a survey the LTVs averaged 65-70%.

⁴³ See Volk, Bernd (2010). *Market Guide Overview Covered Bonds*. Deutsche Bank GM Research. February 8, 2010. p. 9.

⁴⁴ See Block, R.L. (2006). *Investing in REITs*. Third edition, New York. Also: Just, T. (2007). *Langfristige Erfolgsfaktoren von REITs. Was lehrt die Entwicklung in den USA?* In Schäfer, J. [Ed.]. *REITs – Real Estate Investment Trusts. Marktüberblick, Aufbau und Management, Investition in REITs*. Munich. pp. 189-199.

⁴⁵ See Colomer-Gaffney, Nora (2010). *Euro CMBS Borrowers beat defaults with smart techniques*. *Structuredfinancenews.com*. April 1, 2010.

2010 which provides that market participants will have to report ABS transactions (incl. CMBS transactions) to FINRA going forward. While these data are not to be made public for the time being, at least a more precise record will be guaranteed than is now the case via rating agencies or other voluntary reports to data services providers. The ECB would like to continue expanding its centralised securities database and collect more information, e.g. on securities investors and their domicile and sector, in future as well.⁴⁶ Higher transparency in the securitisation markets would be desirable now especially in order to restore confidence to these markets so that the fundamental benefits discussed above could materialise more noticeably. Realistically, however, this is a project for the medium term.

All these measures will not be able to do anything but mitigate the adjustment problems, for the main problem of value deterioration on commercial real estate cannot be eliminated in this way.

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⁴⁶ ECB (2010). The “Centralised Securities Database” in brief. February 2010.

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