New Issue Rating Report

Red 1 Finance CLO 2017-1 DAC

Structured Finance

Scope Ratings

www.scoperatings.com

Ratings

Credit protection agreement	Rating	Notional[a] (GBP m)	Notional (% of loans)	CE (% of loans)	Credit protection premium (%)[b, c]	Final maturity
Tranche A	**AAA_{SF}**	696.7	76.00	24.00	confidential	20 June 2029
Tranche B	**AA+**	68.8	7.50	16.50	confidential	20 June 2029
Tranche C	**$A+_{SF}$**	41.3	4.50	12.00	confidential	20 June 2029
Tranche D	**$BBB-_{SF}$**	22.9	2.50	9.50	confidential	20 June 2029
Tranche E	**BB_{SF}**	25.2	2.75	6.75	confidential	20 June 2029
Tranche F	**$B-_{SF}$**	22.9	2.50	4.25	confidential	20 June 2029
Tranche G	**(not rated)**	39.0	4.25	0.00	confidential	20 June 2029
Total portfolio		**916.8**	**100.0**			

The transaction closed on 22 December 2017. The ratings are based on the final portfolio as of 22 November 2017 provided by the originator. Scope's ***Error! Hyperlink reference not valid.*** are available at *www.scoperatings.com*. The ratings assigned by Scope reflect the risk for the credit protection seller to make payments with respect to credit events under the terms of the credit protection deed. The ratings do not address potential losses arising from the transaction's early termination, nor any market risk associated with the transaction. All ratings reflect the expected loss on each respective tranche, in a risk horizon equal to the expected weighted average life of the tranche.

[a] Total tranche notional equals 95% of the portfolio notional, accounting for 5% risk retention by Santander. [b] Credit protection premium is only accrued on the effective balance after written-off losses. [c] Credit protection premiums were disclosed to Scope, and incorporated in the analysis.

Rated issuer

Purpose	Balance sheet
Issuer	Red 1 Finance CLO 2017-1 DAC
Originator	Santander UK plc
Asset class	CMBS
Country of assets	United Kingdom
Closing date	22 December 2017
Legal final maturity	20 June 2029
Payment frequency	Quarterly
Payment dates	20th day of Mar., Jun., Sep., Dec.

Transaction profile

Red 1 Finance CLO 2017-1 DAC is a synthetic securitisation of commercial real estate loans that were originated in the UK in the ordinary course of business by Santander UK plc. The legal maturity date is 20 June 2029. The GBP 916.8m reference portfolio is static and comprises 25 loans secured by 144 underlying properties and more than 1,800 lease contracts.

Analysts

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1.1 Rating rationale (summary)

The ratings reflect the legal and financial structure of the transaction as defined under the terms of the credit protection deed; the credit quality of the underlying portfolio in the context of macroeconomic conditions in the UK; the ability and incentives of Santander UK plc (Santander), servicer of the reference loans; and the supervision from the verification agent, a reputable global accounting firm[1].

The ratings account for the respective credit enhancement of the tranches, the strictly sequential release of risk coverage from reference portfolio amortisation. The ratings also reflect the credit risk of a concentrated reference portfolio, characterised by material default risk over the loans' terms and at their refinancing.

Tranche B's relatively high sensitivity to changes in the loans' expected recovery rate is reflected in its rating.

The ratings incorporate macroeconomic dynamics in the UK. Scope's market-value-decline assumptions for commercial real estate properties in the UK reflect rising uncertainties associated with Brexit. Scope expects the heightened uncertainties to have an adverse impact on consumer and investment confidence, which, in turn, may have a knock-on effect on commercial real estate by reducing demand and the willingness to maintain the properties' condition.

There is counterparty risk with Santander with respect to credit protection premiums and recovery proceeds. This is mitigated by i) the high credit quality of Santander; ii) the termination of the credit protection deed upon Santander's default, which effectively cancels the exposure to the remaining reference portfolio; and iii) the netting of credit protection premiums and collected recoveries with new loss claims. Scope has a public rating on Banco Santander SA (AA-/Stable Outlook) and has also analysed the credit quality of Santander UK plc.

[1] The name of the company was disclosed to Scope, but flagged confidential by the arranger.

Rating drivers and mitigants

Positive rating drivers	Negative rating drivers and mitigants
Low loan-to-value on mortgages. The commercial real estate loans have a low loan-to-value of 48.7% (based on third-party valuations with an average of nine months since the last valuation), which reflects positively on recovery rates and the probability of successful refinancing at maturity.	**Portfolio concentration.** The reference portfolio is concentrated. The nine largest exposures account for 60% of the entire portfolio, and the property base (144) and tenancy base per property are relatively non-granular. Despite more than 1,480 tenants in total, the number of tenants differs significantly among properties. Several single properties are occupied by a single tenant. This reflects negatively on the level and stability of the interest coverage ratios.
Property quality. The good average property quality increases the likelihood of re-letting and lessens foreclosure costs.	**Bullet amortisation.** All loans in the portfolio have bullet or semi-bullet amortisation. This decreases the likelihood of refinancing at maturity, while increasing the volatility of expected recovery upon default.
Static portfolio. The portfolio is static and does not allow for loan extensions, refinancing and reference loan additions.	**UK macroeconomic uncertainty.** This may lead to lower demand for UK offices, a significant segment for the reference portfolio, especially if Brexit uncertainties prompt companies to relocate to continental Europe.
Experienced commercial real estate lender. Santander's real estate lending activities in the UK date back to 1944 (Abbey National plc, bought by Santander Group in 2004).	

Positive rating-change drivers	Negative rating-change drivers
Increased credit enhancement from deleveraging accompanied by **good performance** may result in upgrades. An improvement of **tenant granularity** through up-letting may also help to stabilise the loans' interest coverage ratios.	**Worse-than-expected default and recovery performance** of the assets will result in downgrades. Recovery rates and refinancing probabilities may reduce if **Brexit** negotiation outcomes lead to lower-than-expected demand for UK commercial real estate, reflecting negatively on property values.

Related reports

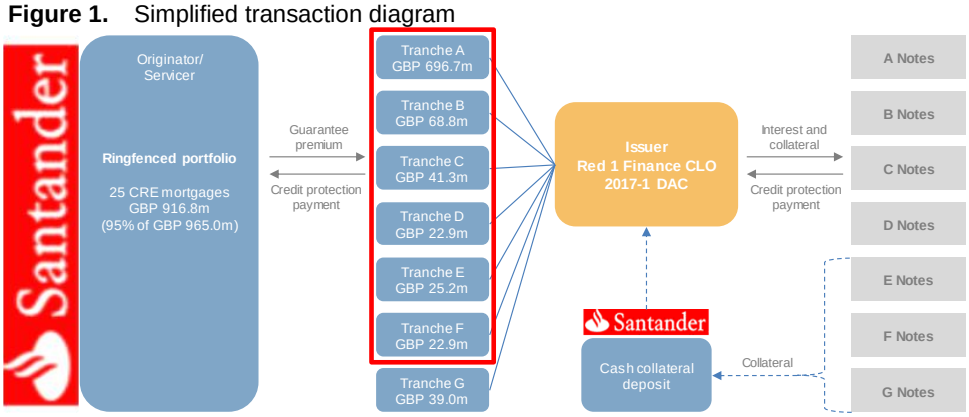
General Structured Finance Rating Methodology, dated August 2017.

Methodology for Counterparty Risk in Structured Finance, dated August 2017.

Risks to Brexit Trade Talks Pronounced as UK, EU Approach Next Paso, published December 2017

2 Transaction summary

Figure 1. Simplified transaction diagram



Source: Transaction documents.

Red 1 Finance CLO 2017-1 DAC (Red 1) is a synthetic securitisation of a static GBP 916.8m portfolio of 25 commercial real estate (CRE) loans originated by Santander for the acquisition of 144 properties in the United Kingdom. Red 1 sells credit protection on the reference portfolio through seven strictly sequential, fully collateralised credit protection agreements – Tranches A to G – entered into with Santander. The ratings assigned by Scope to the tranches (and not to the notes – red frame in Figure 1) reflect the risk for Red 1 to make payments after the occurrence of credit events under the credit protection deed.

3 Originator, seller and servicer

Santander supports the group-wide global operations of Banco Santander SA. The bank targets retail and corporate clients in the UK, while international clients are handled by the group. Real estate is Santander's core activity in the UK, integrating the track record of Abbey National Treasury Services which dates back to 1944.

Scope visited Santander in London to review its operations, focusing on underwriting and servicing practices. Scope also visited selected properties related to the transaction in the greater London area.

3.1 Positioning

This transaction is consistent with Santander's public strategy: improving the efficiency of its CRE business and adjusting the return on the capital contribution. The transaction contributes to the bank's reshaping of risk allocations in its portfolio, by freeing up risk-taking capacity from the real estate business.

The overall prudent business approach of Santander is evident in the results of its recent lending activities. Santander expanded its corporate lending portfolio (which includes CRE) by 7% from 2013 to 2016; contrary to the overall market, which shrunk by 2% over the same period. This expansion was not at the cost of net interest margin, which remained stable at 1.53%[2].

3.2 Origination and underwriting

Santander originates the loans in this securitisation only via its structured real estate business unit. The channel processes highly structured and complex financing transactions with a balance of typically more than GBP 30m. Santander's CRE activities focus on large institutional clients, or small clients with a good track record.

We consider the workflows for sanctioning and executing the CRE credit applications to be effective, limiting risk in accordance with the bank's risk appetite. Santander always involves real estate specialists at the beginning of the sanctioning process, and during final execution when necessitated by the complexity of certain debt structures. The processes

[2] See presentation of Santander UK Group Holdings plc 'Investor Update for the six months ended 30 June 2017', July 2017.

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substantially mirror those of comparable banks, with segmentation of sanctioning authority and the separation of business and risk-sanctioning powers. Santander outsources documentation to third-party legal specialists and will occasionally call on professional advisors.

Higher approval authority is required when total facilities granted to the obligor exceed GBP 30m, or for smaller amounts deemed high risk. This involves the approval of a special lending-commitment committee and can reach up to the group's board of directors. The origination department is authorised to approve smaller, low-risk facilities of up to GBP 30m.

Credit approval occurs over four stages: i) pre-screening; ii) detailed analysis; iii) final approval when loan terms are closed; and iv) due diligence prior to drawdown.

3.3 Staffing

Adequate staffing of CRE origination and servicing

Staffing at Santander is adequate to originate and service the loans in the transaction. The CRE specialist team includes executive middle managers responsible for the origination and execution of CRE loans, with the support of associate directors. On the CRE risk side, the credit officers' experience ranges from five to 20+ years. Depending on seniority, this team is tasked with taking and preparing credit decisions in the origination of CRE loans.

3.4 Servicing and recovery

Proactive monitoring processes

Santander's monitoring processes are sound and reasonably proactive, which helps to anticipate performance issues and reduce the obligors' default risk. This process tracks: i) regular interaction with obligors; ii) management information and interim accounts; iii) covenant-compliance tests; and iv) both general and specific market information.

Santander maintains an early-warning list identifying potential problem loans. This takes place during the monitoring phase. The transaction's eligibility criteria explicitly exclude loans in the early-warning list – except for one exposure currently subject to significant refurbishment and re-letting actions.

Cooperative recovery approach

The recovery strategy is well suited to the sophisticated relationship between the originator and its obligors. This function is performed by a specialised team staffed by restructuring managers averaging at least 10 years' experience. The approach is cooperative, with the aim of helping a stressed or distressed obligor become performing again. The unit also collaborates with external advisors. Santander would only seek an exit solution or liquidation when a cure is no longer possible. Santander's work-out results during 2014-2016 showed high rates of cure and full recovery.

3.5 Alignment of interests

Santander retains 5% on every reference loan. The credit protection deed requires Santander to service the reference portfolio in line with their internal servicing principles. Adherence to this is supervised by the external verification agent.

4 Asset analysis

The credit protection agreements reference 25 CRE loans originated in the UK by Santander in its ordinary course of business. The loans' obligors are large CRE customers of Santander.

This section describes the analysis of these reference loans. In sequence, we analysed the tenant base, the mortgaged properties, and the loans. Appendix II provides further insight on the specific analytical framework we applied to analyse the commercial real estate loans in this transaction.

4.1 Analysis of tenants

The tenant base underlying each reference loan was analysed to infer term default risk (i.e. default risk over the life of a loan).

Scope determined that the rated instruments are not materially sensitive to the credit quality of the tenants.

4.1.1 Moderate risk of disruption to rental cash flow

Different levels of tenant base granularity per property

The initial loan portfolio finances properties that collectively contain over 1,480 tenants. The different tenant granularities in portfolio properties reduce the stability of debt service

Relatively flat lease expiry schedule overstates stability of rental cash flows

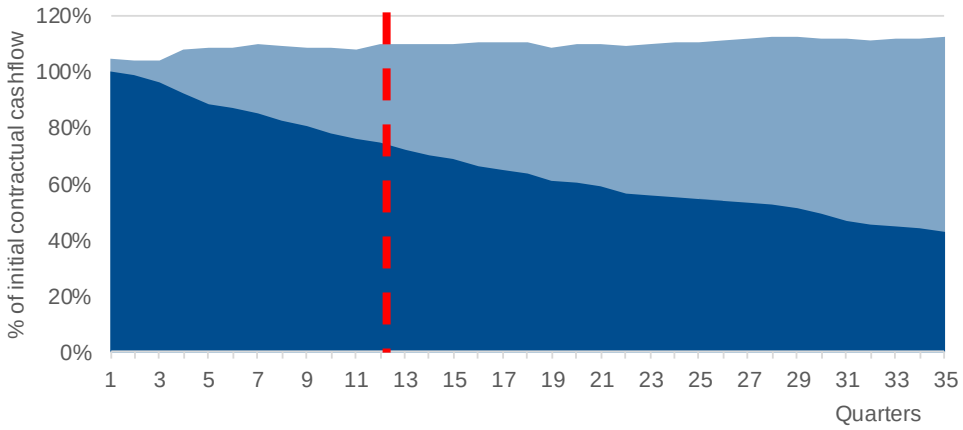
from rent for several loans, demonstrated by a relatively high default probability over the loans' terms. This is partially mitigated by the incentive for many tenants to maintain their leases, even beyond contractual lease expirations and break options, since they are paying less than market rent. The relatively flat lease expiry schedule of the underlying portfolio – more than 70% of rental cash flows are contractually secured over a period equal to the portfolio's weighted average term to maturity – overstates the stability of rental cash flows available for debt service. Figure 2 shows the lease expiry schedule over the expected life of the transaction (red dashed line), which includes contract terminations and existing break options. The figure also shows the possibility of higher rental cash flow if a lease expires and market rent is subsequently charged.

High tenant concentration risk at a per property basis

The portfolio has moderate to high tenant concentration risk at a per property basis. This is especially the case for four loans, each of which effectively finance one property with one tenant. Scope's loan-by-loan analysis captures the high concentration at tenant level, and makes assumptions on tenant behaviour at lease expiration or lease break-up, considering current rent relative to a sustainable market level (described in Appendix II).

In addition, stable demand for central London offices reduces single-event risk through the exposure to largest tenants. We expect that market corrections in prime London locations will be average or better than average, even in a post-Brexit environment.

Figure 2. Rental cash flows – contractual and market level; weighted average portfolio maturity (red dashed line)



Source: Santander and Scope

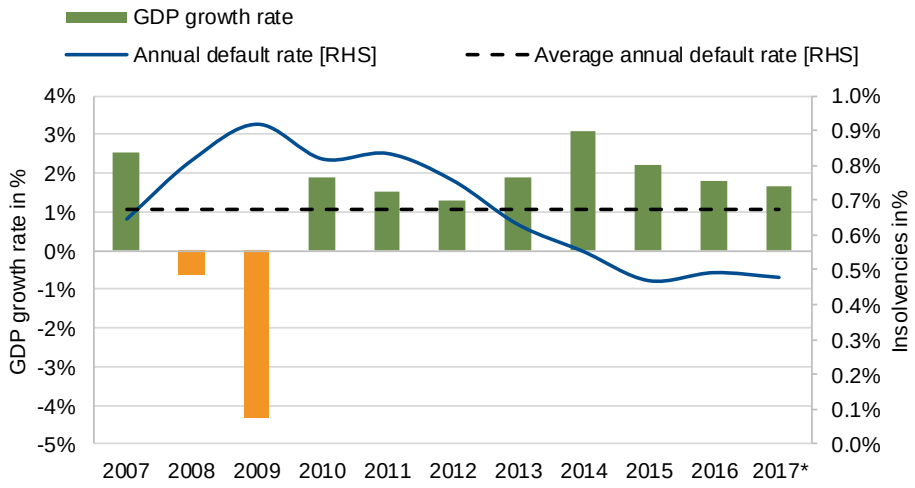
4.1.2 Creditworthiness of tenants

average default risk for tenants commensurate with BB rating, in line with UK average

We assumed a weighted average default risk for tenants of a credit quality commensurate with a BB rating by Scope. Scope has estimated the tenants' credit quality by assuming they are UK enterprises of average credit quality. This generic approach is appropriate given the high granularity of the overall tenant base (over 1,480 tenants in the initial portfolio). This results in a relatively conservative analysis because it dismisses the positive tenant selection resulting from underwriting.

The default risk of UK enterprises is commensurate with that of a company rated BB by Scope. Default probabilities in this analysis represent historical insolvency rates and are consequently not subject to any cure rate. We analysed the insolvency frequency during 2007-17 for UK enterprises and estimated one-year default rates. Figure 3 shows the performance since the beginning of the 2007 financial crisis, a period of significant stress. The average quality of publicly rated tenants is about one notch better than that of non-publicly rated tenants. The publicly rated tenants account for 4.6% of the contracted net rental income. Scope considered public ratings of tenants when available.

Figure 3. Insolvencies in the UK vs GDP growth rates from 2007 to 2017 (expected)



Source: Companies House UK, National Statistics UK, Scope
* 2017 expected

4.2 Analysis of mortgaged properties

We examined the properties backing the transaction's loans to derive loan-specific refinancing default probabilities (i.e. at contractual maturity) and expected recoveries upon default. Our analysis considers property values under a long-term view in the economic cycle – indicative of its sustainable value – and incorporates market conditions we expect following the Brexit vote.

Our market-value-decline assumptions incorporate the distance between the sustainable value and current market values. The property-value haircut, i.e. the rating stress, increases with the target rating from the B base case up to the AAA scenario.

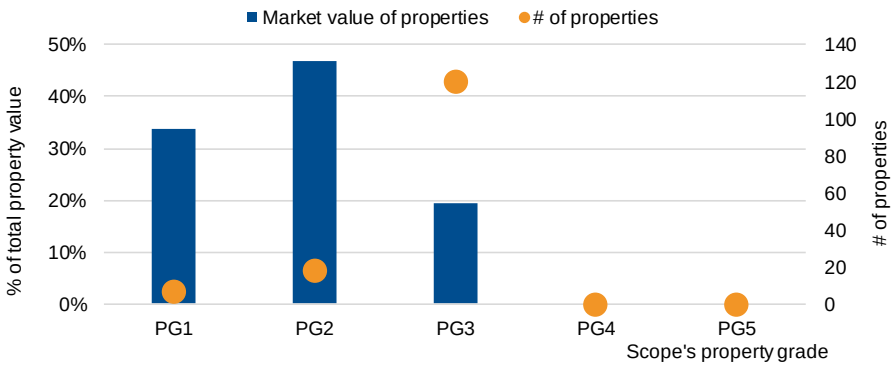
4.2.1 Quality of mortgaged properties

The portfolio's average property quality is good

We mapped property characteristics as per the valuation reports to our 'property grades', which reflect the quality of a property from best (PG1) to worst (PG5). Appendix II details the factors considered in our analysis. The analysed portfolio's average property grade is PG1.9 (good) based on information from external appraisal reports. This implies some downside risk, in our view, as the market value of high-quality properties tends to be more susceptible to market cycles than that of lower-quality properties in consolidated markets.

Scope has assessed property quality as a function of its location, age, last completed refurbishment, and expiry schedule of leases. Scope's mapping also incorporates its conclusions from on-site visits of selected portfolio properties located in the greater London area. Figure 4 shows Scope's assessment of property qualities based on property values and the number of properties.

Figure 4. Distribution of property grades (PG)



Source: Santander and Scope

4.2.2 Property-market environment

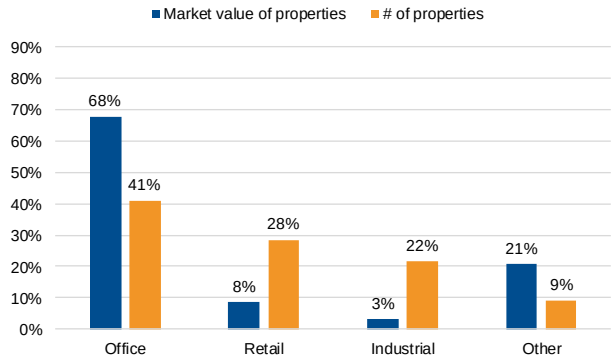
Brexit increases uncertainty in UK CRE markets

Political risks in the UK have risen significantly since the Brexit referendum, and ongoing negotiations between the EU and the UK have so far not alleviated the situation. In the case of a 'hard' Brexit – which we consider to be a rather remote scenario (see Scope's sovereign outlook) – we expect demand for CRE space to reduce among tenants and investors alike. This could increase CRE loan defaults, in turn weakening sponsors' credit profiles. Even so, we anticipate no long-term impact on tenant and investor demand as: i) companies seeking to maintain EU market access are likely to simply build beachheads in the EU rather than relocate their whole business; and ii) investor money is likely to still flow into the UK once Brexit effects can be quantified, following the current pattern with most net investments coming from outside the UK and EU.

The UK property market continues to be dynamic and relatively sound. We expect the market to adjust to the new environment, subject to the value corrections expected. Before the referendum, capital values were growing, boosted by rising rents, and yield reductions were flattening out. Nevertheless, the high level of uncertainty will remain for at least one more year until possible Brexit terms are revealed.

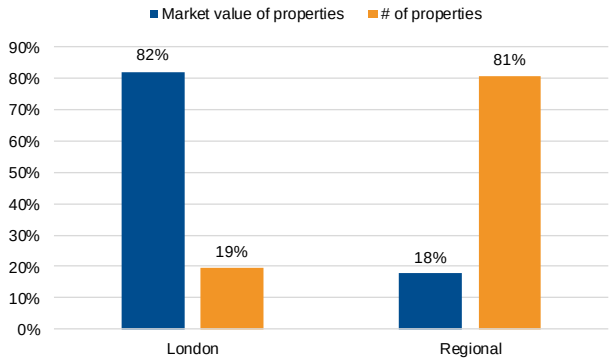
The short- and medium-term reduction of take-up and rents will impact the portfolio's performance only marginally, as many lease contracts exhibit below-market rents. Lease expirations are distributed over a medium risk horizon, as evidenced by the weighted average unexpired lease terms of 6.6 years. Further, we expect yields to rise because property prices adjust faster than rental contracts can be restructured. This results in higher leverage for the loans, which reflects negatively on refinancing default probabilities and expected recoveries. The effect is however partially mitigated given the portfolio's relatively low average loan-to-value ratio.

Figure 5. Property types by market value and property count



Source: Santander and Scope

Figure 6. Property location by market value and property count



Source: Santander and Scope

Scope has built assumptions for the average UK property market, leveraging on historical figures and forecasts provided by industry experts[3]. We chose this approach because the distribution of property types and locations in the portfolio's markets (see Figure 5 and Figure 6) are representative of the UK CRE market.

4.2.2.1 Length of vacancy periods and re-letting likelihood

Scope stressed property cash flows accounting for vacancies

Scope has stressed property cash flows by considering vacancy periods after a tenant defaults or vacates the property (e.g. when rents are above market level). Vacancy periods assumed after the termination of a lease were 10 months for offices, 20 months for retail space, and 11 months for industrial space – given a base average property quality (PG3). Figure 7 shows these vacancy periods as they relate to average lease durations and structural vacancy rates. We have derived these assumptions based on Scope's internal real estate database as well as public data.

We adjusted the vacancy rate assumptions of the market average (PG3) by taking up to +/- 50% deviations from the mean. For example, we assumed a five-month vacancy for the best-quality office (PG1), i.e. 10 months for property grade PG3 minus 50%.

[3]CBRE - Real Estate Market Outlook 2016; CBRE - Continental Drift, C&W - Great Wall of Money. 2016; Savills - Key Themes for UK Real Estate in 2016, BNP - 2016: The year of the UK regions; LHS - Office Report 2015.

Figure 7. Vacancy periods by property type (assuming property grade PG3)

	Office	Retail	Industrial	Other
Average lease duration (months)	120	150	120	90
Structural vacancy rate	8%	13%	9%	6%
Vacancy period (months)	10	20	11	5

Source: Scope, Cushman & Wakefield, Springboard, UKWA, Savills

Scope's re-letting assumption considers structural market vacancies

Our re-letting assumption includes structural market vacancies because, in our view, regardless of quality a property can always be re-let if rents are adjusted accordingly. For example, a new tenant's rent for a PG3-grade office reflects the full market rent minus the structural vacancy of 8%, thus 92% of market rent. Our analysis did not consider up-letting from the current lease profile in the portfolio's properties.

4.2.2.2 Sustainable property value

The portfolio's sustainable property value is lower than current market value. The latter still reflects the pre-Brexit environment in the UK, i.e. excludes the potential relocation of corporations. Low interest rates have brought yields close to historical lows. The sustainable property value is based on Scope's assumptions on yields and the net rental cash flows of portfolio properties.

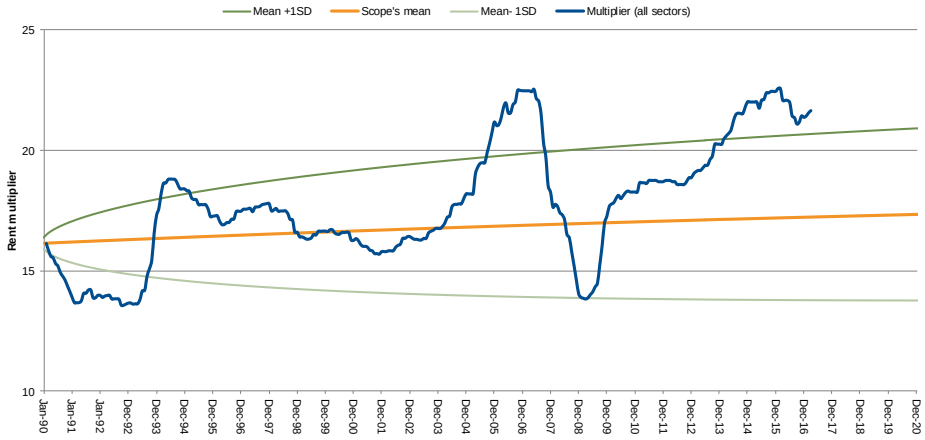
UK CRE market specific property price index

Our yield assumption is based on the price index we constructed specifically for the UK CRE market. This index considers all property types and is based on the weighted average net initial yield. The reliance on one index is appropriate because the distribution of property types in the reference portfolio aligns with that of the general UK CRE market.

Figure 8 shows this price index, representing prices as rental multipliers and incorporating Scope's view on a post-Brexit CRE environment in the UK, i.e. an only marginal increase in sustainable price levels.

Sustainable price levels consider post-Brexit scenario

Figure 8. UK property-price index and post-Brexit assumptions



Source: Scope and Savills

4.3 Loan analysis

High default probabilities partially off-set by high recoveries

Scope has assumed a relatively high default probability for the referenced loans during the life of the loan contracts (term default probability). The probability of default at maturity (refinancing default probability) is, however, higher, which creates a back-loaded term structure of defaults for the reference portfolio. The low weighted average loan-to-value ratio of the portfolio results in generally high recoveries for the portfolio.

Scope's loan analysis combines the analysis of tenants and properties in order to produce loan-specific default and recovery assumptions, which have, in turn, been used to create the distributions of portfolio defaults and losses.

4.3.1 Default probability during the life of the loan (term default probability)

High, but partially instable interest coverage ratios of portfolio loans

The loans' term default probability is high (i.e. average marginal one-year probability of 4.9%), which reflects the instability of the loans' interest coverage ratios (ICR). The ICR is high at 3.9x, but the low tenant granularity for certain exposures results in large swings, impairing the stability of loan servicing via property cash flows. The effect is greater when

major tenants have a higher likelihood of vacating the property during the loan's term. Property cash flows can reduce via void periods, rent-free periods, and refurbishment and re-letting costs. This can result in a breach of the loan's ICR covenants, i.e. loan default.

4.4 Hedging agreements for reference loans

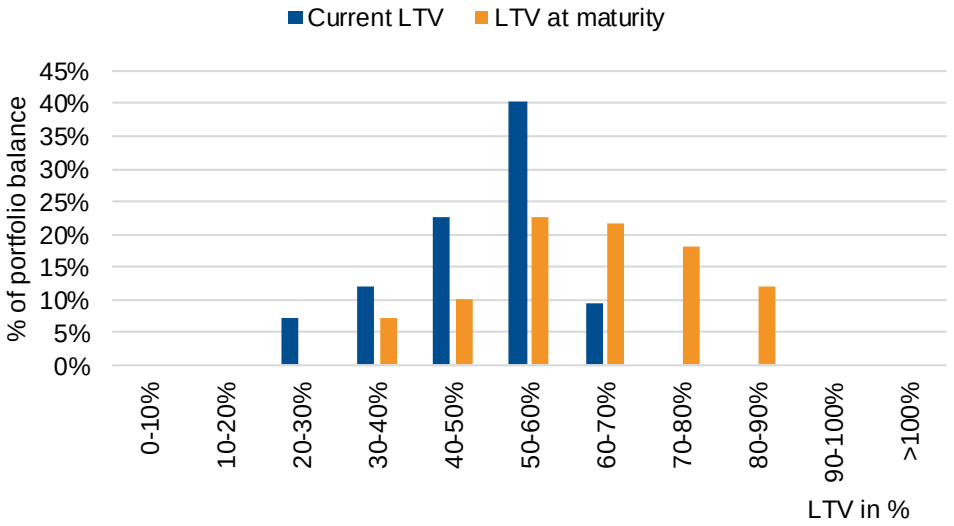
About 60% of the reference loans hedge interest rates via swaps or caps. Steep rises in interest rates could affect a loan's ICR. However, given the short life of the portfolio and the current interest rates, we do not expect the impact to be significant. The loan-by-loan analysis takes into account the unhedged portions.

4.4.1 Default probability at loan maturity (refinancing default probability)

Scope expects loan-to-value levels to rise over the life of the transaction

Scope expects loan-to-value levels to rise from the currently low 48.7% (Figure 9). This accounts for the bullet nature of the portfolio and Scope's market-value-decline assumptions. Refinancing default probabilities are a loan-specific function of loan-to-value ratios and property quality (see Figure 10 and Figure 30 in Appendix II).

Figure 9. Development of loan-to-value over time



Scope assumes that lenders will accept higher leverage levels for high-quality properties (PG1). In these cases, loan-to-value ratios could reach 85%, equivalent to a 15% equity contribution. Figure 10 shows the minimum equity and consequently the maximum loan-to-value ratios we assume are necessary to refinance a property, as a function of its property quality expressed as a property-grade score.

Figure 10. Minimum equity and maximum loan-to-value to enable property refinancing in the UK

Property grade	PG1	PG2	PG3	PG4	PG5
Minimum equity contribution	15%	25%	35%	45%	55%
Maximum loan-to-value ratio	85%	75%	65%	55%	45%

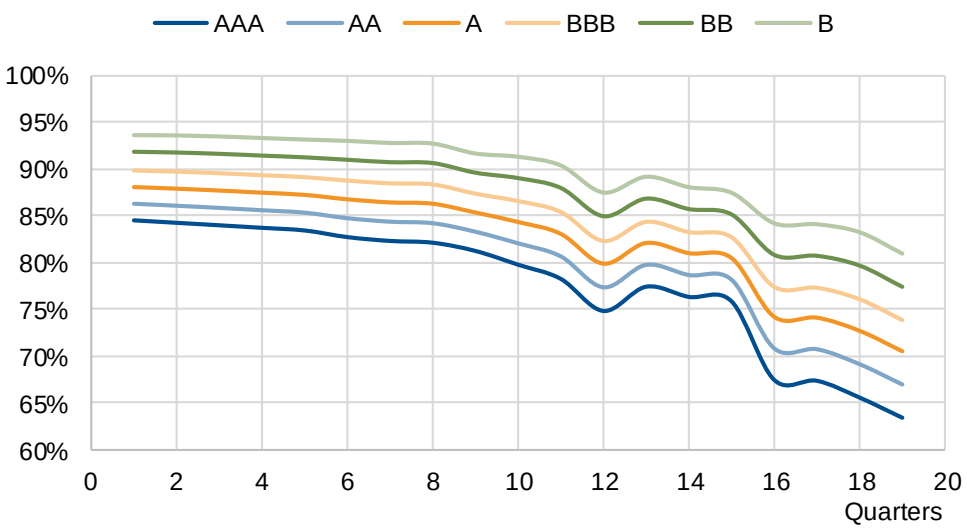
Scope's refinancing default probabilities consider volatility of UK property prices

Scope's estimates of refinancing default probabilities are based on the volatility of UK property prices (i.e. a price index including all property types) and the five-year risk horizon of typical UK loans. Figure 30 in Appendix II shows these refinancing default probabilities as a function of the property grade and loan-to-value at maturity.

4.4.2 Rating-conditional loan-level recovery rates

Most loans in the portfolio exhibit low loan-to-value ratios, which support very high recovery rate assumptions, even under a AAA-conditional stress. Figure 11 shows the weighted average loan-level recovery rates under different rating stresses, also accounting for rating-conditional caps (see 4.6.2 Portfolio recovery rate: Figure 19).

Figure 11. Assumption for weighted-average rating-conditional loan-level recovery rates



Scope assumes that the UK market is currently overpriced

Scope assumes that the UK market is currently overpriced, i.e. above the sustainable level (Figure 8). Nevertheless, this situation is not as severe as in 2008; current interest rates and real margins embedded in the yields suggest current prices are sound in terms of fundamentals. However, we factor in uncertainties from Brexit, which effectively reduce our assumption for the sustainable path, reflecting the uncertain CRE demand.

We have applied property-value haircuts to anticipate a stepwise reversion to the UK property price mean (our long-term or through-the-cycle recovery analysis). Scope seeks to increase the stability of high investment grade ratings by avoiding pro-cyclicality in its assumptions. The loan-level recovery rates assume prices will revert to the level we believe is sustainable for specific properties, minus an additional rating-conditional value haircut. This haircut accounts for distressed-sale discounts, liquidation costs and potential value volatility over the risk horizon and until the loan matures.

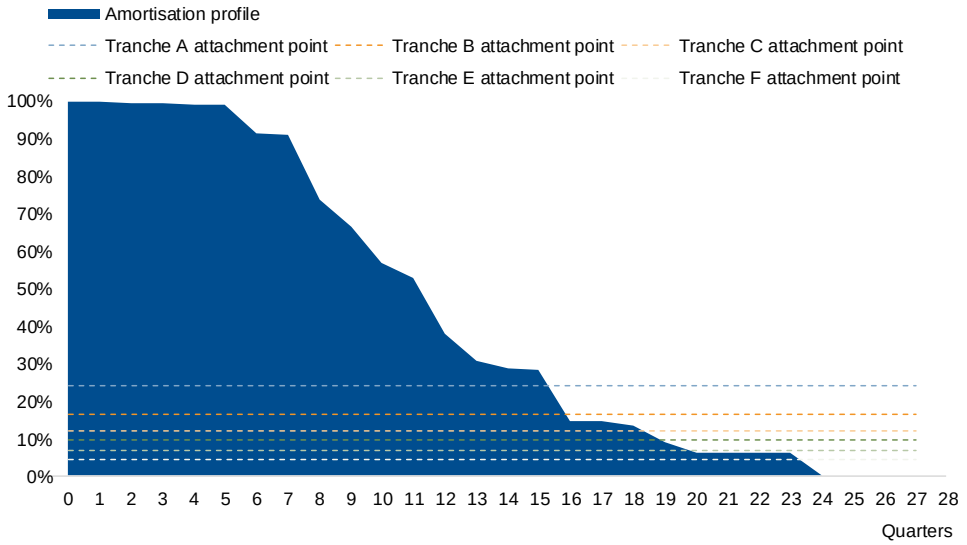
The B-conditional loan-level volatility haircut is 11.5%, increasing linearly to 28.7% for AAA. The distressed-sale discounts and liquidation costs are shown in Figure 32 in Appendix II over the risk horizon and until the maturity of the loan.

4.4.3 Amortisation profile

Amortisation profile reflects the pool's low granularity and the loans' bullet nature

The amortisation of the portfolio reflects the pool's low granularity and the loans' bullet nature. The weighted average life is relatively short at 3.1 years. Figure 12 shows the amortisation profile, including the tranches' attachment points, indicating tranche lives.

Figure 12. Portfolio amortisation profile



4.5 Bank-internal risk assessment of reference portfolio

Loans in the reference portfolio show a maximum bank-internal rating of 6, which compares to the UK regulatory slotting category of 'Satisfactory' (see Figure 13 and Figure 14). One loan is on the bank's internal watch lists.

Figure 13. Mapping of obligor risk slots to risk weights for regulatory capital calculation

Risk weights	Category 1 Strong	Category 2 Good	Category 3 Satisfactory	Category 4 Weak	Category 5 Default
< 2.5 years	50%	70%	115%	250%	(bespoke)
≥ 2.5 years	70%	90%	115%	250%	(bespoke)

Source: European Banking Authority

Figure 14. Mapping of obligor risk slots to expected loss for regulatory capital calculation

Expected loss	Category 1 Strong	Category 2 Good	Category 3 Satisfactory	Category 4 Weak	Category 5 Default
< 2.5 years	0.0%	0.4%	2.8%	8%	50%
≥ 2.5 years	0.4%	0.8%	2.8%	8%	50%

Source: European Banking Authority

4.6 Portfolio analysis

4.6.1 Portfolio lifetime default rate

High portfolio default rate driven by term or refinancing default probability

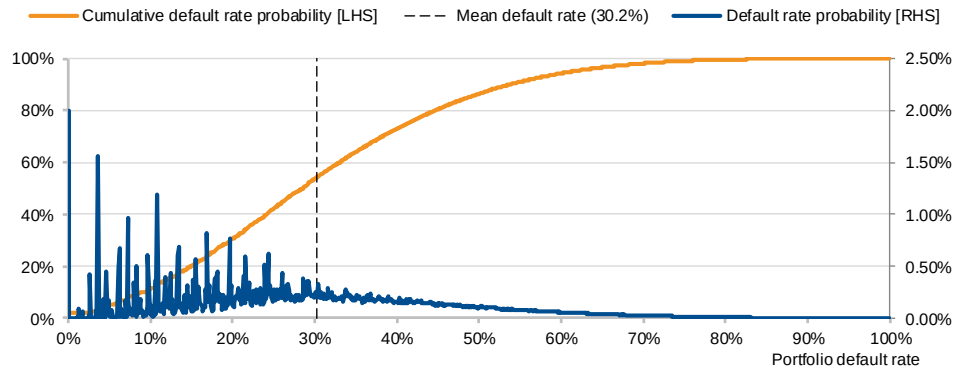
Scope has derived for the outstanding portfolio an average default probability of 30.2% for a weighted average life of 3.1 years. The high rate is driven by the reference exposures with either a high default rate over the term, or a high probability of refinancing failure at maturity. The mean-default rate is almost equally distributed between 10% and 60%; there is only a small probability of either no defaults or defaults beyond 70% (Figure 15 and Figure 16).

The overall high default risk also shows in the relatively low dispersion of the default rate distribution. The low coefficient of variation[4] (56.4%) reflects Scope's high default risk assumption on the loans. The expected portfolio losses are nevertheless limited (i.e. 3.5% under the base case, rising to 7.8% under a AAA recovery scenario). This is due to the recovery rates, which are a result of low loan-to-value ratios and the properties' good quality and location on average.

Scope has used a concentrated-portfolio approach

Scope has produced a non-parametric probability distribution of portfolio default rates for this transaction. Scope has used a concentrated-portfolio approach and analysed the default pattern of individual loan defaults with a Monte Carlo simulation.

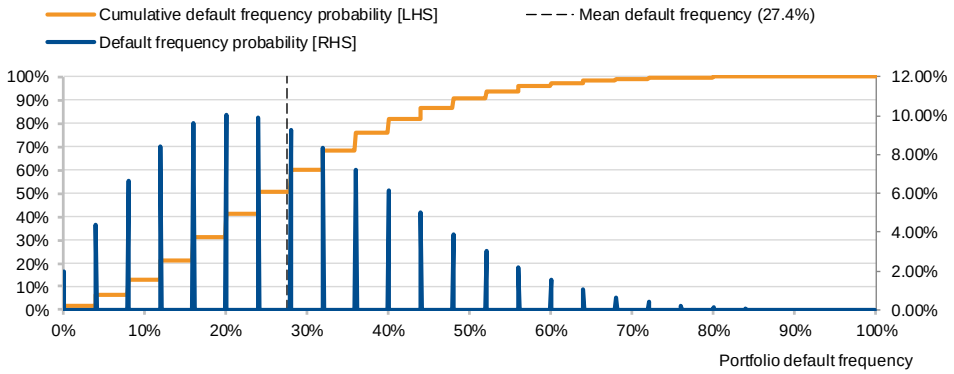
Figure 15. Portfolio default rate probability distribution



Source: Scope

[4] The coefficient of variation is standard deviation divided by the mean. The default distribution is non-parametric and metric is provided for reference purposes only.

Figure 16. Portfolio default frequency probability distribution



Source: Scope

Scope's Monte Carlo simulation has implemented a multi-factor correlation framework

Scope's Monte Carlo simulation has implemented a multi-factor correlation framework adjusted for highly concentrated portfolios to account for the single-sector exposures. This framework is designed to capture the characteristics of the underlying properties, which drive the default probabilities of the loans in the portfolio.

We have assumed a maximum pair-wise correlation of 70% for the loans, split into four factor categories (see Figure 17). Each loan is exposed to at least one factor in each factor category. Loans that represent more than 5% of the portfolio were stressed by applying an additional 20pp to the pair-wise correlation.

This correlation framework creates dependencies between the defaults to capture the loans' complex natures, a result of exposures to multiple UK regions and property types. Figure 17 summarises the correlation framework we have applied.

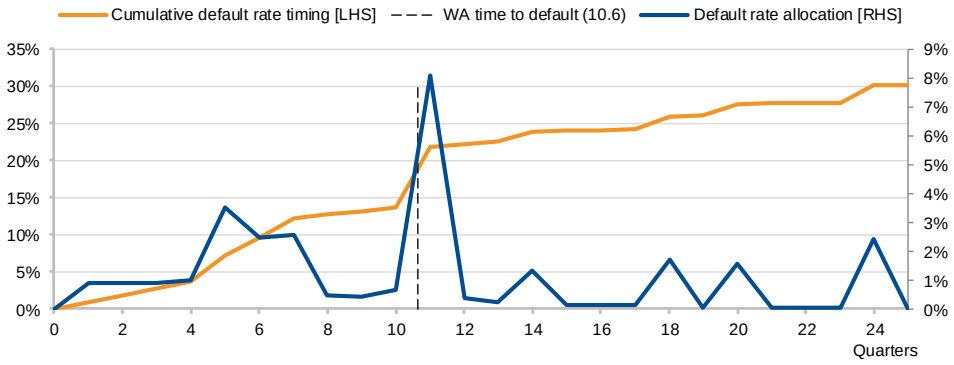
Figure 17. Asset correlation assumptions

Factor category	Factor values	Correlation
Global	N/A	15%
Location	Greater London, regional	15%
Property type	Industrial, office, residential, retail, other	20%
Largest loans (> 5%)	Largest loan	20%

Significant refinancing risk is clustered 2.5 years after closing

The portfolio simulation also produces the expected timing of defaults. This reflects the underlying loans' default probabilities, both over their terms and at maturity. The default-timing vector shows a spike at 2.5 years after closing, the period when significant refinancing risk is clustered. Figure 18 shows the expected default timing.

Figure 18. Default timing resulting from simulation



Source: Scope

Scope has taken a forward-looking, long-term view on the risk of the portfolio. We believe current market conditions are highly volatile (see 'Sovereign risk' on page 16).

4.6.2 Portfolio recovery rate

The portfolio recovery rates are high, even after capturing post-Brexit stresses. This is the result of the low loan-to-value of the loans in the portfolio. We have assumed a AAA-

conditional recovery rate of 74.2% and expect an 88.4% recovery rate on the portfolio (i.e. B-conditional recovery rate). Figure 19 lists the portfolio-level rating-conditional recovery rates.

Idiosyncratic recovery risk of the loans is captured by applying loan-level caps

We have addressed the idiosyncratic recovery risk of the loans by applying loan-level caps to the maximum recovery rate achievable under each rating-conditional recovery stress. This cap constitutes a stress that dismisses the loan-to-value buffer available at loan level, which would result in higher recovery rates.

Figure 19. Rating-conditional recovery rate assumptions

Rating stress	Loan-level recovery cap applied	Rating-conditional recovery rate
AAA	95%	74.2%
AA	96%	77.0%
A	97%	79.9%
BBB	98%	82.7%
BB	99%	85.6%
B (base case)	**100%**	88.4%

5 Credit protection mechanisms

5.1 Credit protection structure

Red 1 covers 95% of portfolio losses

At closing, Red 1 and Santander entered into a credit protection deed, including seven strictly sequential credit protection agreements – Tranches A to G –, whereby Red 1 sells credit protection on the reference portfolio and covers 95% of the portfolio's losses. The loss attachment points, i.e. the respective credit enhancements, are: Tranche A, 24.00%; Tranche B, 16.50%; Tranche C, 12.00%; Tranche D, 9.50%; Tranche E, 6.75%; Tranche F, 4.25%; and Tranche G, 0.0%.

Every quarter, Santander will pay a protection fee to Red 1 that covers all expenses of the protection seller. This combines i) the credit protection premiums of Tranches A to G (based on the effective tranche balances, i.e. outstanding tranche balances minus allocated losses); ii) taxes and costs of Red 1; iii) realised recoveries in excess of expected recoveries; and iv) make-up fees, which reflect unpaid credit protection premiums, or those paid in excess with respect to the difference of expected and realised losses on the reference portfolio.

The credit protection deed minimises cash flows between Santander and Red 1 through netting, which applies unless either of the two parties has defaulted.

5.2 Default and loss definitions

Santander can claim a credit event when a loan in the reference portfolio defaults. A loan default is defined in the transaction as: i) a failure to pay with respect to the reference obligation; ii) a bankruptcy of the obligor or obligor group; or iii) a loss from the restructuring of a reference obligation. The structure also allows for potential defaults, for example, on loans under a grace period for which default is already anticipated as soon as this period ends.

Under the credit protection deed, Santander receives cash payments equal to the expected loss upon the default of a reference obligation, determined in accordance with the bank's internal servicing and accounting guidelines. This loss is then adjusted for the actual loss and excess payments will be reversed.

Definition of realised loss considers a workout period of up to seven years

The definition of realised loss considers a long workout period of up to seven years (work-out process undertaken by Santander, or the bank syndicate, in the case of a syndicated reference loan), After this, a final loss needs to be determined, which may also include the final realisation of all available security under a loan, or the sale of the exposure. The credit protection deed requires that sale negotiations begin six years after a reference loan's default.

Red 1's claims on recoveries that are in excess of the expected amount at time of default and the protection premium compensation survive the termination of the credit protection deed. The same holds true for potential further loss claims from Santander for exposures that have defaulted/potentially defaulted prior to the termination and are still under work-out.

5.3 External verification of losses

External verification agent has significant supervisory rights

The credit protection agreements grant significant supervisory rights to an external verification agent, a reputable global accounting firm[5]. This agent ensures the validity of all loss claims (for expected and final losses) and determines whether expected- and final-loss figures comply with Santander's internal policies. Santander must also demonstrate to the verification agent that its servicing and work-out processes are in accordance with the bank's internal business principles and policies.

5.4 Amortisation and loss allocation

The reference portfolio losses are allocated to the tranches in reverse order of seniority, i.e. from Tranche G to A. Upon default, a loss equal to the expected loss on the defaulted reference obligation will be allocated to the tranches, up to the respective outstanding balance of the affected tranches. The allocated loss is then adjusted (up or down), depending on the realisation of recoveries over time. A too-high expected loss results in a balance reinstatement of the loss-attached tranches in order of seniority. A higher-than-expected loss results in a further write-down.

With respect to the credit protection premiums, Red 1 is compensated as though expected loss equals realised loss. There will be a marginal time-value-of-money loss. Both Santander and Red 1 will not pay interest on the credit protection premium that was not paid or received in excess.

Amortisation of the reference portfolio will be reflected in a release of credit protection in order of seniority.

5.5 Events of default and credit protection termination

Structure is protected by standard termination events

The structure features default and early-termination events that trigger the termination of the credit protection deed (see Figure 20).

Figure 20. Events of default and early termination

Events of default
Non-payment of due amounts by either of the two parties to the credit protection deed
Breach of reporting obligations by Santander, subject to a 10-day grace period
Insolvency

Early-termination option
Illegality
Payments from either party are subject to taxes, others than currently applicable
Reference portfolio amortises to below 10% of the closing portfolio
Regulatory changes may impair the efficacy of the credit protection agreements

6 Ratings

Ratings reflect each tranche's protection against portfolio losses

Scope has assigned ratings to the credit protection agreements (Tranches A to F) as shown in Figure 21. The ratings reflect each tranche's protection against losses from the reference portfolio as well as the strictly sequential release of credit protection alongside reference portfolio amortisation.

[5] The name of the company is known to Scope, but was flagged confidential by the arranger.

Figure 21. Assigned ratings

Credit protection agreement	Rating	Weighted average tranche life[6]	Credit enhancement
Tranche A	AAA_{SF}	2.5	24.00%
Tranche B	$AA+_{SF}$	4.0	16.50%
Tranche C	$A+_{SF}$	4.3	12.00%
Tranche D	$BBB-_{SF}$	4.5	9.50%
Tranche E	BB_{SF}	4.2	6.75%
Tranche F	$B-_{SF}$	4.9	4.25%

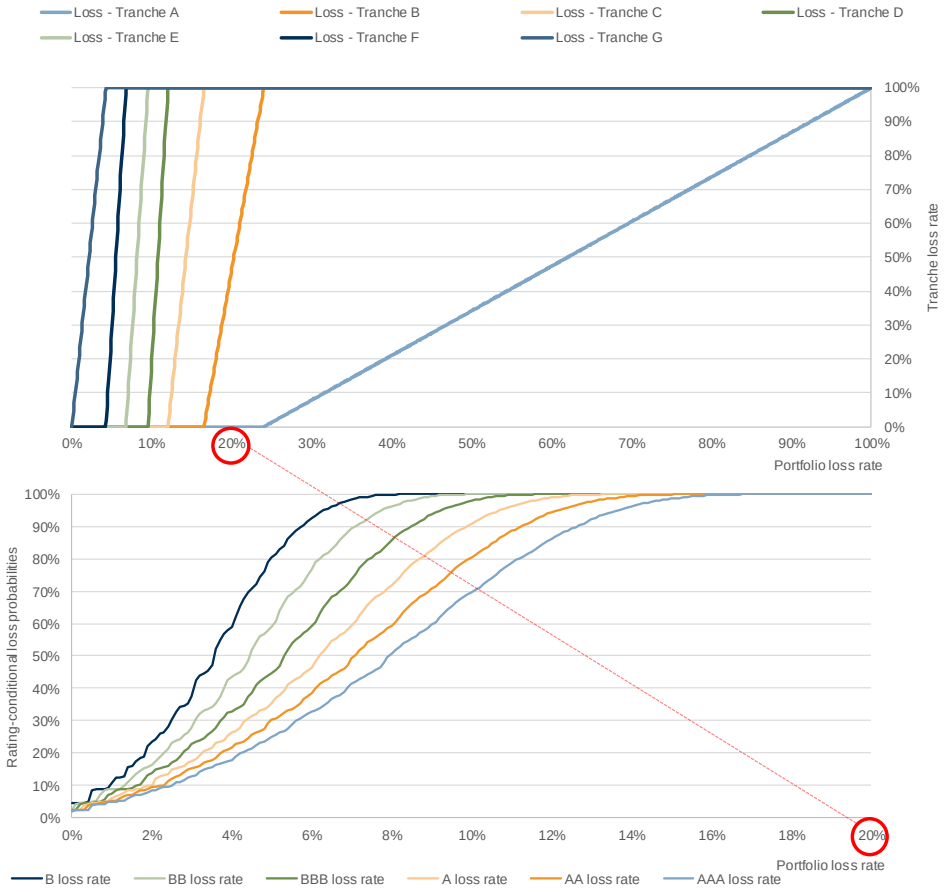
We tested the resilience of each tranche under every rating-conditional loss scenario derived from the portfolio analysis.

The rating of Tranche B also accounts for its high dependency on the expected recovery. Scope considered the volatility of each tranche's quantitative results to changes in the recovery rate that is not commensurate with the highest achievable rating (see 6.1 Rating stability).

Ratings consider rating-conditional loss rates

The results of the loss allocation analysis are shown in Figure 22, which also illustrates the rating-conditional loss rates and the break-even portfolio loss rates.

Figure 22. Tranche losses for all rating-conditional portfolio loss rates



Ratings account for collateral release and tranche premiums

The losses for the tranches in Figure 22 only reflect the loss of principal payments for the respective tranche and do not account for discounting effects. However, the assigned ratings take into account the assigned tranche premiums.

[6] The weighted average tranche life reflects both principal and interest payments under a 0% default assumption. This also leads to the discontinuity between Tranche D and Tranche E, as the higher coupon payments on Tranche D reduce its weighted average life.

6.1 Rating stability

6.1.1 Rating sensitivity

The stability of the ratings is supported by i) the protective mechanisms in the structure and ii) Scope's use of both rating-conditional recovery rate assumptions and a long-term performance reference for the assets, capturing post-Brexit stresses.

Scope tested the resilience of the ratings

Scope tested the resilience of the ratings against deviations of the main input parameters: tenant quality (as a driver of portfolio default) and the portfolio recovery rate. This analysis has the sole purpose of illustrating the sensitivity of the ratings to input assumptions and is not indicative of expected or likely scenarios. The following shows how the ratings for each rated tranche change when the tenant credit quality reduces by three notches or the portfolio's expected recovery rate reduces by 10%, respectively:

- Tranche A: sensitivity to lower tenant quality, zero notches; sensitivity to recovery rates, zero notches;
- Tranche B: sensitivity to lower tenant quality, zero notches; sensitivity to recovery rates, six notches;
- Tranche C: sensitivity to lower tenant quality, two notches; sensitivity to recovery rates, seven notches;
- Tranche D: sensitivity to lower tenant quality, one notch; sensitivity to recovery rates, five notches;
- Tranche E: sensitivity to lower tenant quality, two notches; sensitivity to recovery rates, six notches;
- Tranche F: sensitivity to lower tenant quality, one notch; sensitivity to recovery rates, two notches.

7 Counterparty risk

The credit protection agreements have limited counterparty risk to Santander

The credit protection agreements have only limited counterparty risk to Santander as the credit protection premium payer and regarding potential recoveries in excess of the expected recoveries on defaulted reference exposures.

Counterparty credit risk is mitigated through i) the high credit quality of Santander; ii) netting of payments between Red 1 and Santander; and iii) the very limited exposure. Scope has a public rating on Banco Santander SA (AA-/Stable Outlook) and has analysed the credit quality of Santander UK plc.

In our analysis, we applied the principles defined in Scope's 'Methodology for Counterparty Risk in Structured Finance' (August 2017, available on www.scoperatings.com).

8 Sovereign risk

Sovereign risk does not limit the ratings

Sovereign risk does not limit the ratings on this transaction. Regarding the UK, risks of an institutional-framework meltdown, legal insecurity, capital transfer, or problems converting currency are immaterial for the ratings, even in the context of an exit from the European Union.

Our analysis includes the likely contraction of CRE prices resulting from post-Brexit scenarios. Capital misallocation in the UK was particularly strong for real estate investments during the credit expansion that led to the financial crisis, which was aggravated by the weight of financial intermediation in the UK economy (which peaked at close to 30% of the economy).

Furthermore, we expect several macroeconomic factors to challenge the development of CRE prices. UK economic growth will weaken as investment decisions are postponed until the effects of Brexit can be quantified, and we expect conditions to worsen. Brexit-related uncertainties also remain high.

We anticipate investments to drop significantly as companies revise strategies, with production expected to move away from the UK. Economic growth will remain subdued through to 2018. in our view, the mid- and long-term consequences of Brexit depend heavily on political actions by both the EU and the British government. The process of leaving the EU will persist for at least another year, after which the UK's growth potential will depend on access to the European single market.

We expect unemployment to rise, especially for the financial sector and for companies seeking access to the EU market. Effects will still be visible in the mid-term and will slow growth rates further.

Retail properties will suffer particularly, because the trade sector is especially vulnerable, reflecting the dependency on imports and the insufficient actions to repair deficiencies in international competitiveness. Most external balances are deeply negative. However, the strong depreciation of the pound, as a reaction to Brexit, might mitigate some of these effects.

Industrial properties are also under pressure, now that the UK is faced with a shrunken industrial base that has failed to improve productivity and profitability – with few exceptions.

9 Legal structure

9.1 Legal framework

The credit protection agreements are governed by the laws of Ireland, England and Wales. The transaction represents a synthetic risk transfer by means of financial guarantees to a bankruptcy-remote vehicle, represented by the trustee, US Bank Trustees Limited.

The transaction conforms to international standards and supports the general legal analytical assumptions of Scope (see *'*Legal Risks in Structured Finance – Analytical Considerations*'*, dated January 2015 and available in www.scoperatings.com).

9.2 Use of legal and tax opinions

No legal or tax question grants a specific analytical treatment in the rating analysis

Scope has reviewed and considered the legal and tax opinions produced by the issuer's legal and tax advisers, concluding that no legal or tax question grants a specific analytical treatment in the rating analysis.

10 Monitoring

Scope will monitor this transaction on the basis of performance reports produced by Santander and any other information received from the originator. The ratings will be monitored continuously and reviewed at least once a year, or earlier if warranted by events.

Scope analysts are available to discuss the rating analysis in detail

Scope analysts are available to discuss the rating analysis in detail, the risks to which this transaction is exposed, and ongoing monitoring of the transaction.

11 Applied methodology and data adequacy

For the analysis of this transaction, Scope applied its *'*General Structured Finance Rating Methodology*'*, dated August 2017, and 'Methodology for Counterparty Risk in Structured Finance', dated August 2017. Both are available on www.scoperatings.com.

Appendix I SUMMARY REFERENCE PORTFOLIO CHARACTERISTICS

The following table shows the summary of reference portfolio characteristics and assumptions considered in Scope's analysis.

Figure 23. Main reference portfolio characteristics including Scope's assumptions

Cut-off date	**22 November 2017**
Balance at cut-off	**GBP 916,774,000.00***
Loans	**25**
Properties	**144**
Large loans (>5%)	**9**
Weighted average life (years)	**3.1**
Minimum / **Weighted average (WA)** / Maximum **LTV (current)**	25.2% / **48.7%** / 69.7%
Minimum / **WA** / Maximum **LTV at maturity** (Scope assumptions)	30.6% / **61.7%** / 83.8%
Weighted average unexpired lease term (years)	**6.6**
WA interest coverage ratio	**3.9x**
WA margin	**(confidential)**
WA average term default probability (annual)	**4.9% (B)**
WA refinancing default probability	**14.8% (B-)**
Recovery rates (weighted by simulated defaults)	
WA recovery rate AAA	**74.2%**
WA recovery rate AA	**77.0%**
WA recovery rate A	**79.9%**
WA recovery rate BBB	**82.7%**
WA recovery rate BB	**85.6%**
WA recovery rate B	**88.4%**

* 95% of GBP 965,025,263.16, accounting for the regulatory 5% risk retention by Santander.

Appendix II **COMMERCIAL REAL ESTATE LOAN ANALYSIS**

Scope has applied the following framework to analyse commercial real estate loans in this transaction and produce assumptions to analyse the credit quality of each loan in the portfolio. Scope has generated two assumptions for each loan: the loan's default probability, over its term and at maturity, and the recovery rate upon default (Figure 24).

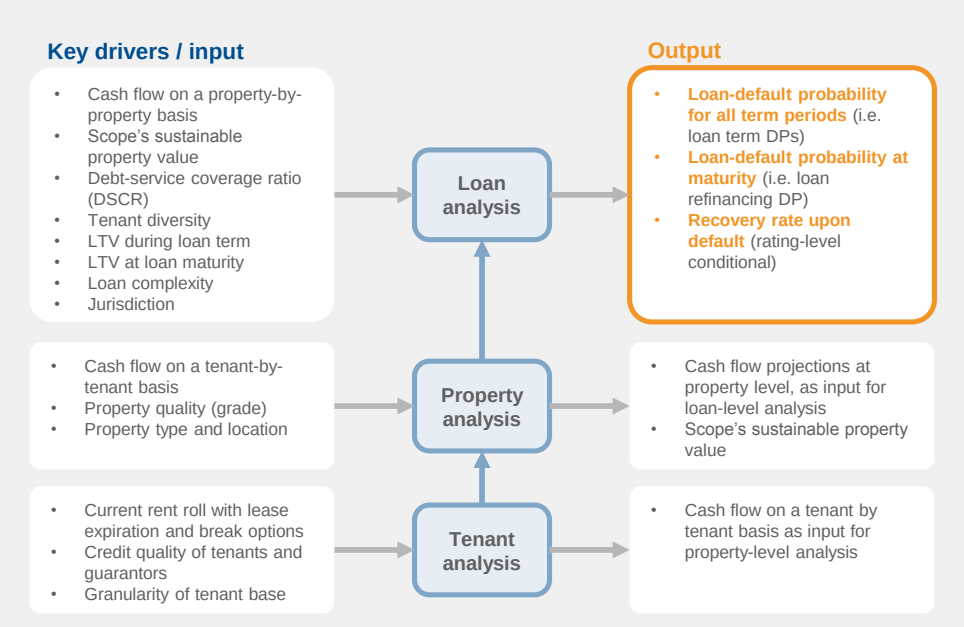
Our fundamental analysis of risk is performed in the following order: i) tenants and tenancy contracts, ii) properties, and ii) the loan characteristics. Each phase of the analysis builds on the results from the previous phase, i.e. bottom-up approach. This analysis takes into account the originator's strategic positioning in the market, the consistency of this positioning with its risk appetite, and the characteristics of the credit products it originates.

The diagram in Figure 24 also shows the analytical steps used to derive the expected loss on a loan. Scope calculates projections of cash flow available to service the loan.

Stressed cash flows over a loan's life influence the probability of a loan defaulting before its maturity, i.e. the term default probability; while the property's market value drives refinancing risk, the probability of a loan defaulting at maturity, i.e. the refinancing default probability, and the severity of default. Refinancing risk is essential to the transaction because commercial real estate loans typically do not fully amortise.

Our analysis is based on the available cash generated by rent (net of operating expenses) and by potential workout proceeds. The cash available to repay both the loan and the market value of underlying properties is stressed under rating-conditional scenarios (i.e. the higher the target rating scenario, the higher the stress). We derive the level of rating-conditional stress from previous commercial real estate cycles observed in the relevant market and in Europe.

Figure 24. Analytical framework for commercial real estate loans



Rental income is the main factor used to derive a loan's default probability and recovery rate, as it drives both the ability to service a loan (term default probability) and the property's sustainable value. The sustainable value is used to derive refinancing default probability and loss given default.

The framework applies to most commercial property types found in typical commercial real estate loans, such as office, retail or industrial properties. A typical commercial real estate loan benefits from a mortgage security over the finished properties as well as pledges on rental income. The framework is not applicable to the analysis of portfolios backed by commercial real estate construction loans or project-development loans.

Tenant analysis

Scope has analysed the current rent roll for all properties that secure a given loan. We have then used the assumptions derived from the rent-roll analysis to forecast the cash flow available to service future debt instalments. Scope has analysed the quality of tenants in a given property by considering their financial strength, creditworthiness, business sectors and geographic diversification. Tenant quality drives the term default probability.

The second-most-important factor driving property values and loan default is the likelihood of a tenant exercising break options on a lease. Break options also worsen the risk of property vacancies during a market downturn. We also consider the likelihood of a lease's renewal upon its expiry.

Creditworthiness of tenants

Scope followed a standard approach based on the one-year default rates of companies in the UK, also because the tenant base is highly granular.

Our cash flow projections on a property have incorporated the default of tenants, the corresponding vacancy periods, and corrections in rent after a lease contract's termination. We implemented a dependency framework between tenant defaults using conservative group and industry dependencies.

Lease expiries and break options

Scope has also analysed the factors that would affect a tenant's decision to either remain in a property or exercise a break option. Such factors are: the level of competition on the local market (i.e. supply versus demand for the property's type and location); contractual rental levels compared to the local market average; and characteristics of the tenant's line of business.

Scope believes a property's risk of vacancy increases when the region of its location also has a high rate of vacancy. This risk also increases when the nature of a tenant's business allows the option to vacate a property when the lease expires, which is common among law or consultancy firms.

If the tenant base is granular, Scope derives its assumptions on tenant behaviour – at lease contract expiry or when a break option is used – by comparing contractual rent with the current market level, i.e. the estimated rental value (ERV). We assume a lease will be terminated if a tenant's rent is more than 10% higher than the estimated rental value. Conversely, we assume a tenant is more likely to extend a lease if the rent is fairly priced or under market rate.

Property analysis

Scope's property analysis looks at a property's characteristics and quality – which results in a property grade – and the local property market's characteristics and condition. These factors influence our cash flow projections and view on a property's sustainable value.

Property grade definition

Scope has assigned a grade to the properties securing the reference loans, representing the quality of the properties. The highest property grade is PG1, e.g. a prime landmark building in a micro/macro location ideal for its usage type. The lowest is PG5, e.g. a property in poor condition in a degraded or undeveloped/unconsolidated location. Certain assumptions are associated with the property grade and reflect on the cash flows a property can generate sustainably. The grade is also used to infer the property's sustainable value.

The property grades take into account a property's distinct characteristics i.e. type, location and attributes. Property grades reflect the properties' condition and attractiveness to the market by examining: i) maintenance costs and capex (historical and expected); ii) vacancy rates (historical and expected); iii) micro and macro location; iv) age; and v) the expiry profile of lease contracts. We use information from: i) on-site visits; ii) valuation reports from established industry experts; and iii) market studies from reputable sources.

Figure 25 shows the weights Scope has applied to the fundamental drivers of property quality in order to derive the property grade ranking.

Figure 25. Scope's indicative weights to derive property grades

Property attributes	Weight	Ranges
1. Location		
1.1 Micro location	20%	Very attractive to poor micro location, on a 1-5 scale
1.2 Macro location	20%	Very attractive to poor macro location, on a 1-5 scale
2. Property condition	20%	New or fully refurbished to poor, on a 1-5 scale
3. Property quality	20%	Luxury to poor, on a 1-5 scale
4. Lease expiry/break option profile	20%	Very long to very short weighted-average unexpired lease term, on a 1-5 scale

The property grade has a significant impact on the estimated sustainable property value. This is because the property grade affects projected cash flows and sustainable yield, which are factors used to determine the level and volatility of the sustainable property value. The higher the property grade, the more stable the sustainable value.

Market environment

Market attractiveness for a property type influences: i) prices and rental levels; ii) volatility of prices and rental levels; iii) property yields; and iv) take-up[7].

Rental level development. Scope adjusts rental levels upon the expiry of a lease if these deviate from the estimated rental value. We derive estimated rental values for the respective sub-markets using benchmarks and market research from reputable public and private sources such as the Investment Property Database.

Duration of vacancy periods. The duration of a vacancy after a lease is terminated is a function of both the average lease length in a specific market and the peak vacancy rate observed in the last cycle. This base assumption applies to property grade PG3. The property-specific assumption is a result of upward adjustments for lower-quality properties, i.e. PG4 or PG5; and vice versa for PG1 or PG2.

Figure 26. Calculation of vacancy periods for the UK and property grade PG3

	Office	Retail	Industrial	Other
Average lease duration (months)	120	150	120	90
Structural vacancy rate	8%	13%	9%	6%
Vacancy period for a PG3 property (months)	10	20	11	5
Adjustment for property quality	PG1		-50%	
	PG2		-25%	
	PG3		0%	
	PG4		+25%	
	PG5		+50%	

Re-letting likelihood. We have assumed that re-letting after a lease's termination is generally possible. However, the likelihood can be limited by i) lease terms; ii) market vacancy rates; and iii) the property's quality. This is illustrated in Figure 27 and Figure 28.

Tenant behaviour upon lease termination or when break options are used depends on current lease terms and their relation with the estimated rental value. We assume that tenants would remain in a property at current conditions if a tenant's rent is not 10% higher than the estimated rental value (i.e. fairly priced or under market value).

Scope has adjusted re-letting assumptions when contract-specific information indicates a tenant is more likely to vacate the leased space. For instance, a lower likelihood of re-letting is considered if tenant demand is weaker (e.g. the tenant plans to relocate its headquarters or has reduced staff numbers over the recent years).

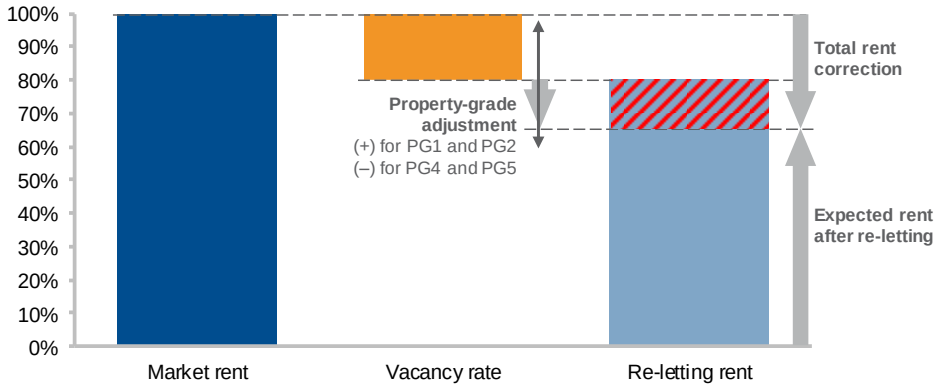
We have assumed re-letting is possible, but after a vacancy period and subject to a rental-level haircut that equals the vacancy rate. These adjustments reflect the impact market vacancies have on the likelihood of re-letting and the terms of new contracts.

[7] Newly rented space, typically in square meters, for a given property market or submarket in a given period of time.

Scope has distinguished between structural and cyclical vacancy rates. This distinction is relevant for the analysis of re-letting likelihood over the projected period. Cyclical vacancies reduce quickly during economic upturns, whereas structural vacancies tend to persist through the cycle.

Scope has adjusted the applicable vacancy rate for the current market in line with the specific property grade, which reflects the property quality. We believe higher property grades increase the likelihood of re-letting as well as raise the expected rental value after re-letting (see Figure 27).

Figure 27. Derivation of re-letting rent level



Property cash flow projections

Scope has built its expectation of sustainable cash flow for each property and for every quarter over the life of the loan. Cash flow projections leverage on all previous stages of the analysis (i.e. tenancy analysis, market environment and property grade).

Sustainable cash flow discounted at the sustainable yield determines the property's sustainable value. Sustainable value, in turn, drives the refinancing default probability and the recovery rate after term or refinancing defaults.

We have also calculated the debt-service coverage ratio and interest coverage ratios by using sustainable cash flow, rather than actual cash flow.

Figure 28 shows an example of events that might affect a property's cash flow over the life of a loan. A vacancy period will follow the termination of a rental contract upon tenant default, lease expiry or the exercise of a break option. The vacancy period and the re-letting rental levels depend on the factors already presented.

Scope has combined cash flow available from all properties securing the loan and simulates tenant defaults, vacancy periods and re-letting leases.

Figure 28. Example - Sustainable cash flow of a property

1 Break option, lease expiry or tenant default
2 If fairly priced or under-rented
3 If over-rented or other reasons increasing likelihood of settlement to vacate the premises

Scope's sustainable property value

The property yield is the sustainable return on the investment in a property. It is defined as the relationship between sustainable rental income (cash flow) and sustainable property value. We apply property yields currently observed for comparable properties and locations to derive sustainable yield and to value a given property.

Scope has based its opinion on the property yield on reputable sources of market research relevant for the sub-market and property type. Scope also considers information from on-site visits and valuation reports.

Scope calculates the sustainable value of a property by discounting the sustainable cash flow at the corresponding yield. Sustainable value consequently reflects the cash flow developments possible during both the life of the loan and at maturity, under normal, through-the-cycle market conditions. The sustainable property-value assumption estimates the mid-point between the boom and the bust points of a market cycle.

Scope uses the sustainable property value to calculate the sustainable loan-to-value ratio. The loan-to-value, in turn, enables Scope to calculate the severity of loan defaults and the refinancing default probability.

Scope discounts cash flows over a 10-year horizon; the 10th year is discounted for perpetuity. We assess sustainable market values during our monitoring process. Scope may adjust sustainable values and related assumptions if there are significant shifts in cash flow or yield.

Loan analysis

Scope has calculated the default term structure (i.e. the time distribution of default probabilities) in the loan-analysis phase. The default term structure of the loan reflects: i) term default probability; and ii) refinancing default probability.

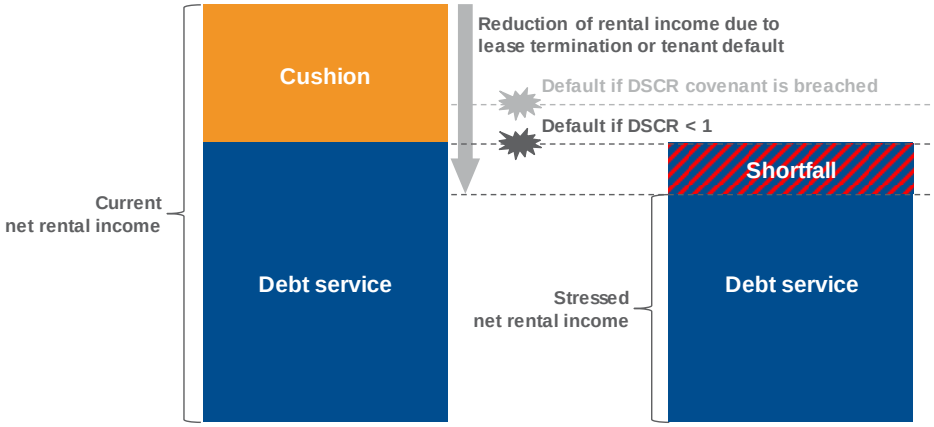
Scope also estimates the severity of loan defaults during the loan-analysis phase. Expected loss upon default is driven by the asset's loan-to-value ratio.

Term default probability

The aggregated sustainable cash flows for each property represent the amount available for interest and principal payments on a given loan. This is reflected in the expectations for debt-service coverage ratio (DSCR) or the interest coverage ratio (ICR).

Scope has accounted for loan characteristics such as strong covenants, cash-trapping mechanisms, cash reserves, and hedging. Scope deems a loan as defaulted if cash flows are insufficient to service debt, or when loan-level DSCR/ICR covenants are breached. We have simulated the probability of default for every period over the life of the loan, which captures tenant defaults, vacancy periods and the adjustment to rent after a property is re-let. In general, a higher DSCR/ICR provides a better cushion against deteriorating cash flows which could ultimately lead to a default of a loan.

Figure 29. Tenant defaults and lease termination drive term default probability



Scope analyses the loan documentation to adjust general assumptions such as recovery timing or recovery costs. A high likelihood of support from the loan sponsor could also reduce the loan's credit risk, for example, when the sponsor provides significant equity for the property.

Refinancing default probability

The risk of the failure to refinance outstanding debt at the scheduled maturity increases the default probability at the end of the contract. Generally, the larger the balloon component of any partially amortising loan, the greater the risk. This risk is highest for bullet loans.

The main driver of refinancing default probability is the expected loan-to-value at maturity, (exit LTV). Other factors also contribute: loan features, property type, property grade, and market conditions at refinancing.

Scope's expectation of the exit LTV reflects expected contractual amortisation during the life of the loan. The expected exit LTV is the total outstanding loan amount expected at maturity divided by Scope's assumption on expected sustainable property value.

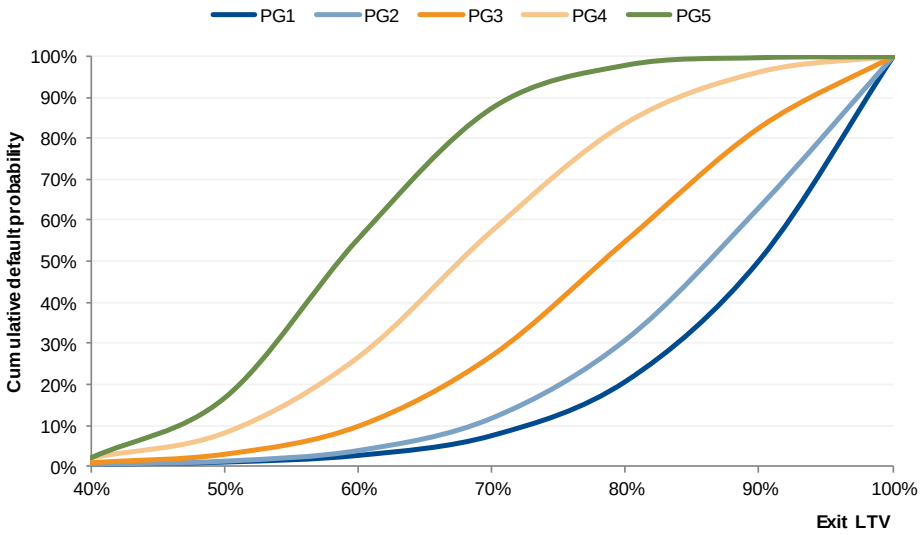
At maturity, Scope deems a loan as defaulted when the property's value is lower than the loan's outstanding balance (i.e. when the exit LTV is above 1). The actual value of the property when a loan matures is a random variable that may deviate from the expected sustainable property value.

Refinancing default probability is higher for properties with low property grades and equates to the probability that the loan's outstanding balance at maturity exceeds the sustainable property value. This effectively uses the Merton approach to analyse default at the point of refinancing. The volatility of the sustainable exit property value is a function of the property grade.

Figure 30 illustrates typical default probability curves at loan maturity for varying exit LTV levels and property grades. Scope assumes that for an average-quality property (PG3), a lender would be indifferent about refinancing a loan with an exit LTV of 78% (i.e. equal likelihood of either default or successful refinancing). Scope uses similar curves to derive the market-specific tables indicating the refinancing default probability for a given exit LTV and property-grade pairs.

Under an alternative view, defaults occur when a borrower cannot provide sufficient equity for the loan. Equity contribution is essential for commercial real estate financing. Lenders require more equity on loans that finance lower-quality properties. The maximum loan amount that can be refinanced depends on the property grade.

Figure 30. Refinancing default probabilities as a function of exit LTV and property grade



We have analysed the volatility of property values with a process[8] that captures adverse-value paths over the life of the loan. Scope's forecast of a property's value, or the expected exit value, equates to its sustainable value (Scope's calculation is described in previous sections). The longer the life of the loan, the higher the chance of adverse-value paths, and the more dispersed the probability distribution of exit values. We typically construct refinancing default probability tables over the average duration of loan contracts in that market (i.e. five years for the UK).

Figure 31 illustrates how Scope derived the loans' refinancing default probability using the cumulative probability distribution of property values at maturity as well as relevant break-even values. Scope assumes loan default when the property value falls below a level derived from the rental cash flow analysis, i.e. break-even value. The break-even value is calculated using the loan's outstanding balance at maturity and the indifference exit LTV of lenders for the corresponding property grade. This is represented by the following expressions:

$$Refinancing\ DP = probability\{property\ values\ < Break-even\ value\}$$

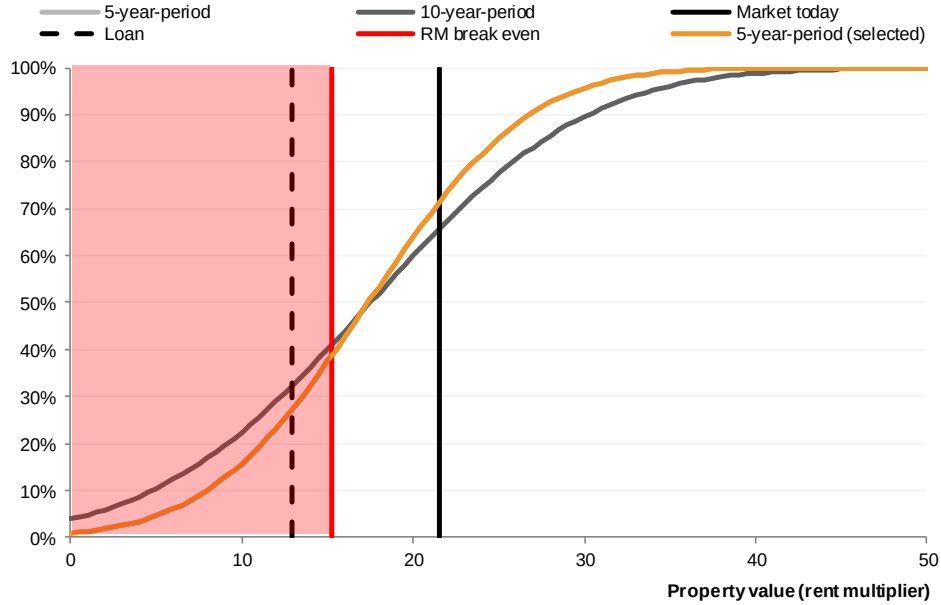
where

$$Break-even\ value = Balance_{maturity} \times Indifference\ exit\ LTV|_{property\ grade}$$

A property value below the break-even line (red shaded area in Figure 31) would result in a loan defaulting at maturity because it is impossible to refinance outstanding debt at the maturity date. Figure 31 also shows that the refinancing default probability increases when the risk horizon is longer (i.e. increasing the risk horizon from five to 10 years increases the probability that property values will fall below the break-even threshold).

[8] Ornstein-Uhlenbeck process with drift.

Figure 31. Example of derivation of refinancing default probability (cumulative probability of property values and relevant value-thresholds)



Finally, high exit yields make it more likely that a lender will refinance a loan. The exit yield equals the sustainable cash flow divided by the loan's expected balance at maturity. The exit yield is the maximum interest rate that the sustainable cash flow can support. For example, a loan with an exit yield of 8% can only support refinancing at an interest rate of up to 8%; a higher interest rate would result in interest coverage ratios of below 1.

Recovery rate

Scope derived the recovery assumptions for severity calculations from foreclosure analysis. We have assumed property foreclosure will occur during a recovery process, even though refinancing into a new loan contract after a default is often more likely. Consequently, the money recovered after default is the net amount received after the enforcement of the mortgaged security. The recovered amount is net of enforcement costs and any claims that rank senior to the loan being analysed.

Recovery rates take into account the expected property value at maturity, subject to the following adjustments: i) distressed-sale discounts; ii) claims against security value that rank senior to the loan; iii) claims against the security value ranking pari passu to the loan; iv) any break-up costs (debt or hedging derivatives); and v) the time and cost of the enforcement process.

We believe distressed-sale discounts are a function of the property grade. High-quality properties in liquid markets are, all things being equal, in higher demand, and therefore the expected distressed-sale discount is lower than that affecting PG5-grade properties in rural locations. Figure 32 shows the recovery costs that Scope assume for the analysis.

Figure 32. Indicative recovery costs

Property grade	PG1	PG2	PG3	PG4	PG5
Distressed sale discount	10.0%	15.00%	20.0%	25.00%	30.0%
Liquidation costs (incl. timing)					
Fix (%age of outstanding loan)	*5.0%*	*7.5%*	*10.0%*	*12.5%*	*15.0%*
Variable (%age of properties market value)	*7.5%*	*7.5%*	*7.5%*	*7.5%*	*7.5%*

Appendix III **REGULATORY AND LEGAL DISCLOSURES**

This credit rating is issued by Scope Ratings AG. The rating analysis was prepared by Sebastian Dietzsch. Responsible for approving the rating: Guillaume Jolivet. The ratings were first assigned as final ratings by Scope on 22.12.2017. The ratings were last updated on 22.12.2017.

Methodology

The methodology used for these ratings is the 'General Structured Finance Rating Methodology' and the 'Methodology for Counterparty Risk in Structured Finance', both dated August 2017. Available on www.scoperatings.com.
Historical default rates of Scope Ratings can be viewed in the rating performance report on https://www.scoperatings.com/#governance-and-policies/regulatory-ESMA Please also refer to the central platform (CEREP) of the European Securities and Markets Authority (ESMA): http://cerep.esma.europa.eu/cerep-web/statistics/defaults.xhtml. A comprehensive clarification of Scope's definition of default as well as definitions of rating notations can be found in Scope's public credit rating methodologies on www.scoperatings.com.

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