Realkredit Danmark A/S – Capital Centre S and Capital Centre T

Mortgage Covered Bonds

Full Rating Report

Ratings/Outlook

Realkredit Capital Centre S Mortgage Covered Bonds	AAA/Stable
Realkredit Capital Centre T Mortgage Covered Bonds	AA+/Stable

Rating Rationale

Capital Centre S/Capital Centre T	
IDR/Outlook	A/Stable
IDR uplift	0/0
PCU	6/6
Tested rating on a PD basis	AA+/AA
Recovery given default uplift	1/1
Covered bonds rating	AAA/AA+
Lowest level of OC over the past 12 months (%)	6.5/8.2
AAA breakeven OC (%)/AA+ breakeven OC (%)	5.0/7.0

Key Data

	Dec 17
Asset type	Residential and commercial mortgages
Mortgage assets (DKKbn)	251.7/471.8
Reserve OC (DKKbn)	15.3/35.6
Covered bonds (DKKbn)	251.7471.8
WA life of assets (years)	23/23
WA life of liabilities (years)	25/2

Source: Realkredit investor report

Related Research

Covered Bonds Surveillance Snapshot (January 2018)

Realkredit Danmark A/S – Ratings Navigator (September 2017)

'B' Portfolio Loss Rates for Covered Bonds (September 2017)

Covered Bonds Extension Clauses (July 2017)

Global Housing and Mortgage Outlook - 2018 (January 2018)

Covered Bonds Survey Highlights Focus on Regulation in 2018 (January 2018)

Fitch 2018 Outlook: Covered Bonds (December 2017)

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Key Rating Drivers

Two- and Three-Notch Downgrade Buffers: The 'AAA'/Stable and 'AA+'/Stable ratings of Realkredit Danmark A/S's (A/Stable/F1) mortgage covered bonds is based on the issuer's Long-Term Issuer Default Rating (IDR) of 'A' and seven notches of uplift from a Payment Continuity Uplift (PCU) of six notches and a recovery uplift of one notch. This provides buffers of two and three notches against an IDR downgrade to maintain the ratings.

No IDR Uplift: The programme is not eligible for an IDR uplift as the bail-in tool is not applicable to Realkredit. Danish legislation from March 2015 specified the non-application of the bail-in tool to specialised mortgage institutions.

Stable PCU for CC S: The PCU for Capital Centre S (CC S) reflects the liquidity protection of at least 12 months. Almost all the bonds (97%) are passed through while the redemptions of the remaining 3% hard-bullet bonds are covered by liquid assets (excluding Realkredit's bonds) for at least 12 months. Government bonds provide cover for three months of interest payments.

PCU Increased to Six for CC T: The PCU for Capital Centre T (CC T) has increased to six notches from four. This reflects increased liquidity protection for the hard-bullet bonds (19%) as their redemptions are covered by eligible liquid assets on a 12-month rolling basis. Government bonds provide cover for three months of interest payments.

No Currency Mismatches: There is a natural hedge between the assets and covered bonds due to the balance principle. As a result, the programmes are eligible for two notches of recovery uplift, subject to OC covering the credit losses in the target rating scenario. One notch was assigned as the lowest OC to support the rating is based on one notch of recovery uplift above the tested rating on a probability of default (PD) basis.

CC T's Rating Constrained by OC: CC T's bonds rating is constrained by the OC relied upon (the lowest nominal level observed over the past 12 months) of 8.2%, as it is below the 'AAA' breakeven OC of 8.5%.

Programme Highlights

Breakeven OC Improvements: The 'AAA' breakeven OC for CC S has reduced to 5.0%, driven by the lower credit loss of 5.1% in a 'AA+' scenario. We removed the 4% expected loss floor on the residential sub-pool, given its very good historical performance.

The 'AA+' breakeven OC for CC T decreased to 7% from 8%, due to the lower credit loss of 6.8% on a 'AA' PD basis. This stems from the reduction of the foreclosure frequency adjustment for adjustable rate mortgages (ARM) in Fitch Ratings' updated Danish criteria. We also incorporated our prepayment assumptions into the portfolio credit model used for the commercial sub-pool's analysis, leading to lower credit losses.

Mixed Asset Cover Pools: CC S comprised 67% residential and 33% commercial assets at end-1Q17, while the respective figures for CC T were 54% and 46%. The expected losses are 6.1% for CC S in a 'AAA' scenario and 8.2% for CC T in a 'AA+' scenario. The higher expected loss for CC T's cover pool is due to the larger share of ARM loans and commercial assets.

Selected Peers for Comparison

Issuer/ programme	Cover pool	CVB Rating
Realkredit CC S	Residential and commercial mortgages	AAA/Stable
Realkredit CC T	Residential and commercial mortgages	AA+/Stable
Danske D	Residential mortgages	AAA/Stable
Danske I	Residential mortgages	AAA/Stable
Danske C	Commercial mortgages	AAA/Stable

Source: Fitch

Related Criteria

Covered Bonds Rating Criteria (March 2018)
Structured Finance and Covered Bonds Counterparty Rating Criteria (May 2017)
Structured Finance and Covered Bonds Counterparty Rating Criteria: Derivative Addendum (May 2017)
EMEA RMBS Rating Criteria (October 2017)
Denmark Residential Mortgage Rating Criteria Addendum (November 2017)
SME Balance Sheet Securitisation Rating Criteria (February 2018)
Commercial Real Estate Loans Securing Covered Bonds Rating Criteria (November 2017)
Structured Finance and Covered Bonds Interest Rate Stresses Rating Criteria (February 2018)
Structured Finance and Covered Bonds Country Risk Rating Criteria (September 2017)

Peer Comparison

The key rating drivers for the two Realkredit programmes are compared below with the three 'AAA'-rated regulated Danish covered bond programmes issued by Danske Bank. Although all issued out of Danish institutions, the programmes differ markedly as to the type and country of assets, as well as the issuance set-up and asset liability mismatches. The selected peers are listed in the table in the left-hand margin.

Please see the Covered Bond Surveillance Snapshot and related Excel file (January 2018) for a detailed comparison of rating drivers across Fitch-rated covered bond programmes.

Peer Comparison: Key Rating Drivers

	Realkredit CC S	Realkredit CC T	Selected peer average	Selected peer range
IDR/Outlook	A/Stable	A/Stable	A/Stable	All A/Stable
IDR uplift	0	0	1.2	0-2
PCU	6	6	5.4	5-6
B portfolio loss rate (%)	0.6	1.1	0.7	0.4-1.1
AAA breakeven OC (%)	5.0	7.0[a]	9.9[b]	5.0-15.5[b]

[a] 'AA+' break-even OC for CC T
[b] Excluding Realkredit CC T, rated 'AA+'
Source: Fitch

Sovereign Impact

The covered bond rating does not include any adjustments due to Denmark's sovereign rating of 'AAA'/Stable. For CC S, 99% of cover assets are denominated in Danish kroner and the other 1% is in euros. For CC T, 93% are in Danish kroner, 3% in euros, 3% in Swedish kronor and less than 1% in Norwegian kroner. As such, all cover assets are in countries with a country ceiling of 'AAA', so Fitch does not adjust the 'AAA' rating default and recovery rates, which are applied in its covered bond analysis.

Sensitivity Analysis

The 'AAA' rating of CC S would be vulnerable to downgrade if the issuer's IDR was downgraded by three notches to 'BBB' or lower, the PCU were reduced to three or lower, or the OC that Fitch Ratings takes into account decreased below the 'AAA' breakeven level of 5.0%

The 'AA+' rating of CC T would be vulnerable to downgrade if the issuer's IDR was downgraded to 'BBB-' or lower, the PCU is reduced to two or lower, or the OC that Fitch takes into account fell below the 'AA+' breakeven level of 7.0%. The rating of CC T could be upgraded to 'AAA' should the relied upon OC increase to 8.5%.

Issuer

Realkredit is a specialised mortgage lender and is fully owned by Danske Bank. It is the second-largest issuer of covered bonds in Denmark with a market share of 26% at end-June 2017. Its main competitors are Nykredit and Nordea, which have market shares of 42% and 14%, respectively. Realkredit operates in all regions of Denmark and offers mortgage loans secured by both residential and commercial properties.

Abbreviations

IDR: Issuer Default Rating

OC: Overcollateralisation

PCU: Payment Continuity Uplift

PD: Probability of Default

WAL: Weighted Average Life

WAFF: Weighted Average Frequency of Foreclosure

WARR: Weighted Average Recovery Rate

Counterparties

Issuer	Realkredit
Originator	Realkredit
Servicer	Realkredit
Collection accounts	Danske Bank, Nordea and Jyske
Issuer account	Danish Central Bank, Danske Bank
Swap providers	None

Source: Realkredit

Issuance Template

Structure

Realkredit is subject to the Danish legislation on banking activities, whereby mortgage banks may only grant mortgage loans that meet the cover asset requirements imposed by such legislation (see *Appendix 6* 'Legal Framework' for more details) and may fund their activities through the issuance of covered bonds.

An issuer holds the cover assets on its balance sheet. Bonds and assets are assigned to individual capital centres upon origination. Bonds maturing can be refinanced in another capital centre, in which case the corresponding assets would be transferred as well.

Two Capital Centres

Realkredit mainly issues covered bonds out of two programmes: CC S and CC T. The former was established in 2008 and the latter in 2011 to segregate covered bonds with refinancing risk. Over the past few years, covered bonds issued out of both capital centres have been mortgage covered bonds or "Særligt Dækkede Realkreditobligationer" (SDROs) although the programmes' documentation allows issuing mortgage bonds or "Realkreditobligationer" (ROs). Please see *Appendix 6* for more details.

IDR Uplift: None

The IDR uplift applies to programmes issued from jurisdictions with an advanced bank resolution regime that includes a bail-in tool for senior liabilities and from which fully collateralised covered bonds or secured debt are exempt. In addition, resolution must not result in the direct enforcement of the recourse against the cover pool. We also analyse the applicable legislative regime and contractual obligations contained in the programme documents to assess possible risk of undercollateralisation at the point of an issuer resolution.

Realkredit CC S and CC T programmes have been assigned a zero-notch IDR uplift, as Realkredit is a specialised mortgage lender not operationally integrated into a parent bank and the bail-in tool is not applicable to specialised mortgage banks in Denmark. According to Fitch's interpretation of the EU's Bank Recovery and Resolution Directive (BRRD), specialised mortgage institutions that cannot receive deposits are not subject to the MREL (minimum requirement for own funds and eligible liabilities) as covered bonds issued by those institutions will be resolved according to specific winding-down procedures under which they could bear losses. The Danish legislation specifies that the bail-in tool is not applicable to specialised mortgage institutions.

PCU: Six Notches

Fitch considers that covered bond payments may continue to be met without any interruption once recourse to the cover pool has been enforced, and will be measured according to the programmes' liquidity protection mechanisms.

Fitch has assigned these programmes a PCU of six notches. For CC S, this reflects the liquidity protection in place for at least 12 months. A total of 97% of the outstanding bonds have a pass-through amortisation profile while the remaining 3% are hard bullet, whose redemptions are covered by eligible liquid assets for at least 12 months. The six notches also reflect the interest payment protection for at least three months in the form of government bonds (Danish and French bonds rated 'AAA' and 'AA', respectively).

We have increased the PCU for CC T to six notches to reflect the lower liquidity risk in the programme since 1Q17. This is based on the programme's liquidity provision, which Fitch has been assessed as equivalent to 12 months' protection. Of the outstanding bonds, 81% were issued after March 2014, when a new law was passed, and thus have an extendible maturity feature by virtue of law that mitigates refinancing risk. As the remaining hard-bullet bonds

(19%) mature, the programme's refinancing risk decreases. The cover pool also includes liquid assets that are external to the issuer group and provide protection against principal payment interruption risk for 12 months. The six notches also reflect the government bonds held for OC purposes that cover at least three months of interest payment.

None of the other factors influencing payment continuity analysed by Fitch (see Appendix 2 Payment Continuity Risk) represents a high risk, which in Fitch's view would be otherwise reflected in a PCU reduction.

Summary of Liquidity Protection Mechanism – Capital Centres S and T

	Capital Centre S	Capital Centre T
Programme type	Pass-through (97%) and hard bullets (3%) Residential and commercial mortgages located in Denmark	Soft bullet (81%) and hard bullets (19%) Residential and commercial mortgages located in Denmark
Liquidity protection for principal payments	For the callable bonds, no liquidity shortfall since cash-flows from the assets are passed-through to the bonds directly. For the hard bullets, their refinancing risk is mitigated by the presence of liquid assets held for overcollateralisation purposes which provide for at least 12 months of liquidity protection.	For the soft bullets, the maturity may be extended by 12 months at a time if the bond refinancing fails (cf. Refinancing Regulation paragraph in Appendix 4 Issuance Template). For the hard bullets, their refinancing risk is mitigated by the presence of liquid assets held for overcollateralisation purposes which provide for at least 12 months of liquidity protection.
Liquidity protection for interests payments	Three months of interests payments are covered by liquid assets due to the presence of government bonds (Danish rated 'AAA' and French rated 'AA')	Three months of interests payments are covered by liquid assets due to the presence of government bonds (Danish rated 'AAA' and French rated 'AA')
Impact of counterparty criteria for structure finance and covered bonds?	No	No
Other risk consideration impacting PCU assessment	No Asset segregation and alternative management do not present a high risk. See Appendix 2 Payment Continuity Risk.	No Asset segregation and alternative management do not present a high risk. See Appendix 2 Payment Continuity Risk.

Source: Fitch

Cover Pool

As of 1 April 2017, the balance of the CC S cover pool was DKK238 billion, while the CC T cover pool balance was DKK470 billion, without taking into consideration the OC. For CC S, 67% of loans in the cover pool are residential mortgages (54% for CC T) and the remainder are commercial mortgages (including loans secured by agricultural properties, industrial properties, retail stores, offices and multifamily/private rental properties).

Capital Centre S and T Cover Pool Breakdown by Asset Type

	Capital Centre S (DKKm)	Capital Centre T (DKKm)	Capital Centre S (%)	Capital Centre T (%)
Residential	159,874	252,438	67.1	53.7
Agriculture	8,390	39,451	3.5	8.4
Business	21,261	102,047	8.9	21.7
Multifamily/rental residential	48,696	75,741	20.4	16.1
Total	**238,290**	**469,677**	**100.0**	**100.0**

Source: Realkredit

The key difference between the capital centres is the interest-rate type distribution of the cover pools. CC S contains predominantly fixed-rate assets for the life of the loan, while variable rate assets (mainly ARMs) have been gradually refinanced into CC T. CC T contains only variable-rate assets (mostly ARMs).

Capital Centre S and T Cover Pool Breakdown by Interest Rate Type (at end-April 2017)

	Capital Centre S (DKKm)	Capital Centre T (DKKm)	Capital Centre S (%)	Capital Centre T (%)
Fixed	221,628	378	93.0	0.0
ARM	5,735	360,227	2.4	76.7
Other variable	10,927	109,073	4.6	23.2
Total	**238,290**	**469,677**	**100.0**	**100.0**

Source: Realkredit

OC Composition

The OC is invested in highly rated securities. Most of these exposures are rated 'AAA', with the remainder being rated in the 'AA' category such as French government bonds.

As of 30 September 2017, the breakdown of these assets was as shown in the table below.

Liquid Assets Breakdown

	Capital Centre S (DKKm)	Capital Centre T (DKKm)	Capital Centre S (% of total bonds)	Capital Centre T (% of total bonds)
Realkredit bonds	3,494	3,774	1.4	0.8
Danish covered bonds[a]	10,832	28,317	4.3	6.2
Danish government bonds	1,773	3,636	0.7	0.8
French government bonds	240	491	0.1	0.1
Total	**16,339**	**36,218**	**6.4**	**7.9**

[a] Mostly with Nykredit
Source: Realkredit

Fitch gives credit to liquid assets that are eligible for the purposes of the liquidity coverage ratio (LCR). These exclude Realkredit's own bonds (unless they correspond to outflows under the LCR calculation window) and assets that represent exposures to the issuer group. In Fitch's view, investing in its own bonds is not as liquid as investing in other banks' bonds or government bonds. Fitch notes that since the 2015 implementation of the LCR, Realkredit's OC investment in its own covered bonds has reduced since it is now limited under the new requirement.

Cover Pool Credit Analysis

Fitch has analysed the residential cover pools according to its *EMEA RMBS Rating Criteria* (published in October 2017) and its *Denmark Residential Mortgage Rating Criteria Addendum* (published in November 2017) and the commercial asset pools according to *SME Balance Sheet Securitisation Rating Criteria* (published in February 2018). In addition, Fitch calibrated its base case default and recovery assumptions based on historical performance data provided by Realkredit. The agency performed the asset analysis using line-by-line data for the cover pool.

Danish Mortgage Loss Assumptions Review

The main criteria changes related to the default probability assumptions for residential mortgages are for ARMs. Fitch removed the distinction per origination year and the adjustment is now differentiated only between short-term ARMs, with an interest reset frequency below three years (+120%) and long-term ARMs with an interest reset frequency of three years or above (+30%). This is supported by the historical performance data showing lower probability of default for ARMs with longer reset cycles compared with loans with reset cycles of one or two years. This also reflects that borrowers with ARMs tend to have higher income multiples than borrowers on a fixed-rate product, which in itself already attracts a higher PD under our criteria. The foreclosure frequency adjustment for variable-rate mortgages and holiday homes have been reduced to +30% and +45%, respectively, backed by updated performance data.

The recovery assumptions are mostly unchanged, with the exception of the illiquid property threshold and the adjustment for the bottom 2.5% properties located in the capital region, Hovedstaden, which have been modified to DKK825,000 with a haircut of 86%. This reflects the general price increase in this region.

Residential Mortgage Assets

Residential mortgage pools contain mortgage loans secured by residential properties (houses, flats and holiday homes) in Denmark, mostly in urban areas with some concentration in the Hovedstaden region, which includes Copenhagen. Mortgage loans have an annuity amortisation profile, but can have an interest-only period of up to 10 years. Based on the underwriting criteria, the maximum maturity of loans is 30 years.

Residential Mortgage Asset Cover Pool (end-April 2017)

	Capital Centre S	Capital Centre T
Capital centre cover pool amount (DKKm)	238,290	469,677
Residential cover pool		
Total amount of loans (DKKm)	159,874	252,438
% of the capital centre, excluding the substitute collateral	67.1	53.7
Number of loans	144,309	221,985
Number of borrowers	133,414	172,774
OLTV (including prior and junior lien loans (%))	68.7	59.9
CLTV[a] (including prior lien loans (%))	60.5	59.5
WA interest rate[b] (%)	2.4	1.2
Interest-only (%)	28.0	61.4
Holiday houses (%)	4.0	5.1
Hovedstaden region (%)	46.0	49.4
Interest rate type (%)		
Fixed	96.0	0.0
ARMs	1.0	92.3
Other variable rate	3.0	7.7

[a] CLTV including all prior liens (within Realkredit or at other banks if any)
[b] This does not include the administrative margin paid to the bank
Source: Fitch

The expected loss on the residential mortgage pool is 2.9% for CC S in a ‘AAA’ rating scenario, and 4.1% for CC T in a ‘AA+’ rating scenario. The expected loss levels for both Capital Centres have decreased from the previous analysis in March 2017.

For CC S, this is driven the removal of the 4% floor as envisaged in the *EMEA RMBS Rating Criteria* report, to reflect idiosyncratic risks. This was justified by the very good performance of the residential pool and the fact that the cover pool also contains commercial mortgages with higher loss assumptions, which lead to overall credit losses above 4% for CC S.

For CC T, the lower expected loss compared to the last analysis comes from the lower weighed average foreclosure frequency as the adjustable-rate mortgage assumptions modification largely affected the programme’s residential sub-pool.

The difference in expected loss rates between the capital centres is driven by the higher concentration of ARMs in Capital Centre T, which are assigned higher default probabilities compared to fixed-rate mortgages due to the risk of increased payments for borrowers at the interest-rate reset date.

Fitch Default Model Results – Capital Centre S

(%)	WAFF	WARR	WA MVD	Expected loss
AAA	7.8	63.6	53.9	2.9
AA+	7.0	66.1	51.9	2.4
AA	6.2	68.7	49.9	1.9
AA-	5.7	70.3	48.6	1.7

WAFF = Weighted Average Frequency of Foreclosure
WARR = Weighted Average Recovery Rates
WA MVD = Weighted Average Market Value Decline
Source: Fitch

Fitch Default Model Results – Capital Centre T

(%)	WAFF	WARR	WA MVD	Expected loss
AAA	14.0	64.6	53.9	5.0
AA+	12.6	67.1	52.0	4.1
AA	11.1	69.6	50.0	3.4
AA-	10.2	71.2	48.7	2.9

WAFF = Weighted Average Frequency of Foreclosure
WARR = Weighted Average Recovery Rates
WA MVD = Weighted Average Market Value Decline
Source: Fitch

Commercial Mortgage Assets

Commercial mortgage pools contain mortgage loans secured by agricultural, multifamily/rental and business (retail, industry, office) properties in Denmark mostly and more marginally in Sweden and Norway. Mortgage loans have annuity amortisation profiles, but can have interest-only periods of up to 10 years. According to the underwriting criteria, the maximum loan maturity is 30 years. Unlike residential assets, a significant amount of commercial loans have variable rates (other than ARMs). Also, commercial loan borrowers pay interest on a quarterly basis, while the residential borrowers pay monthly.

The asset analysis was performed using Fitch's Portfolio Credit Model (PCM). One of the main drivers of the pool's PD is the long average life of the loans (more than 10 years) which is explained by the proportion of interest-only loans (17% and 26% of the current loan balance of CC S and CC T, respectively) or deferred amortisation (4% and 27% in CC S and CC T). We applied high and low prepayment assumptions to the amortisation profile of the assets in PCM and in the corresponding scenario in the cash-flow model. The other PD drivers are the credit quality of the individual borrowers and the relatively high concentration levels for the borrowers' industry.

Commercial Mortgages Characteristics (end-April 2017)

	Capital Centre S	Capital Centre T
Capital centre cover pool amount (DKKm)	238,290	469,677
Commercial cover pool		
Total amount of loans (DKKm)	78,416	217,239
% of the capital centre, excluding the substitute collateral	33.9	46.3
Number of loans	15,745	40,213
Top 10 borrowers (%)	5.34	10.56
Indexed CLTV[a] (including prior lien loans) (%)	56.7	58.1
Interest-only or deferred amortisation (%)	21.1	53.2
By property type (%)		
Agriculture	10.7	18.2
Business	27.1	47.0
Multifamily/private rentals	62.1	34.9
Interest rate type (%)		
Fixed	87.1	0.2
ARMs	4.9	58.6
Other variable rate	7.9	41.3

[a] CLTV including all prior liens (within Realkredit or at other banks if any)

Note: the sum of each breakdown may be different from 100% due to rounding issues.
Source: Realkredit

Portfolio Credit Model Results – Capital Centre S

(%)	RDR	RRR	Expected loss
AAA	32.7	61.2	12.7
AA+	29.6	63.5	10.8
AA	26.2	65.2	9.1
AA-	22.8	65.4	7.9

RDR = Weighted average frequency of foreclosure
RRR = Weighted average recovery rates
Source: Fitch

Portfolio Credit Model Results – Capital Centre T

(%)	RDR	RRR	Expected loss
AAA	40.5	63.0	15.0
AA+	37.4	65.6	12.9
AA	33.3	67.5	10.8
AA-	29.6	67.8	9.5

RDR = Weighted average frequency of foreclosure
RRR = Weighted average recovery rates
Source: Fitch

When combining the model results for the residential and commercial assets, the expected loss in a ‘AAA’ rating scenario has been reduced to 6.1% from 6.6% since the last review for CC S. The reduction was driven by the removal of the 4% expected loss floor on the residential assets. For CC T, the combined ‘AA+’ rating scenario expected loss decreased to 8.2% from 10.1%, mainly due to lower expected loss on the residential assets, as explained above.

Cash Flow Analysis

Fitch reviewed its cash flow analysis assumptions for Danish covered bonds as part of the annual review of its criteria for analysing mortgages in Denmark. For more information regarding Fitch cash flow analysis assumptions, please refer to *Denmark Residential Mortgage Rating Criteria Addendum* (published in November 2017) and Appendix 5 for commercial mortgages.

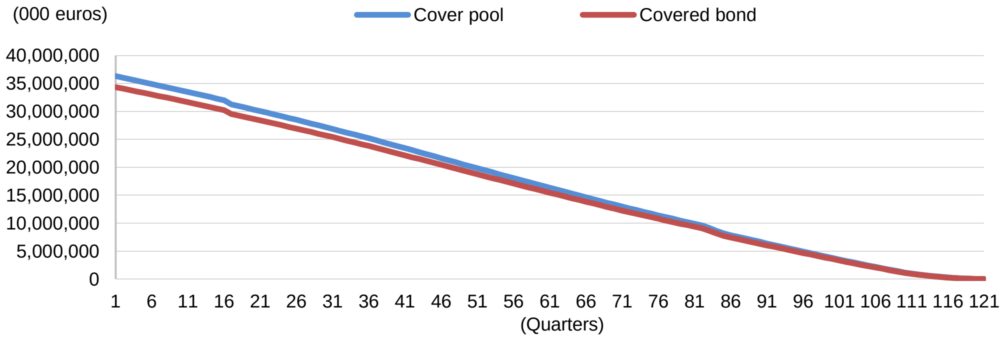
Fitch’s cash flow analysis is conducted in a wind-down scenario, assuming the insolvency of the issuer. Fitch’s cash flow model tests whether the assets, under the management of a third party, would be sufficient to service interest and principal payments on the notes in a full and timely manner. There is no cross-collateralisation between the capital centres. The OC from one capital centre can be used for payments in the other capital centre only after all covered bonds and senior debt of the capital centre have been repaid in full.

Fitch gives credit in its analysis to the possibility of refinancing bonds being issued post-insolvency and potential support from the authorities to allow timely payment on the covered bonds post-insolvency.

Due to the importance of the instrument for the domestic financial system, Fitch deems an intervention by the authorities to be very likely, if required. As a result, and in contrast to other mortgage covered bond programmes in other jurisdictions, Fitch did not model a fire sale of the assets in its cash flows analysis. For this reason, the main drivers of the OC are the credit risk of the pool and the management and servicing costs assumed in the given stress scenario. The expected cash flows from the assets were modified to reflect prepayment, delinquency, default and recovery assumptions in ‘AA+’ and ‘AA’ PD basis scenarios for CC S and CC T, respectively.

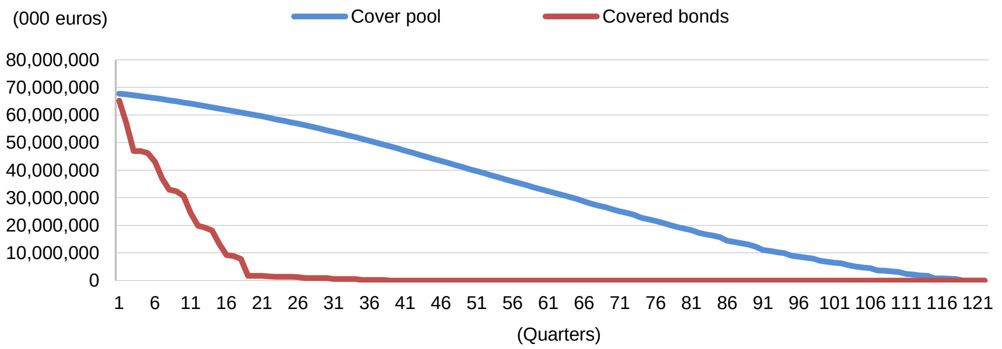
The 30-year fixed-rate bonds are effectively pass-through securities and are repaid in accordance with the maturities of the fixed-rate assets, while the other bond types have shorter maturities than the cover pool assets.

Amortisation Profiles of Assets and Bonds for Capital Centre S



Source: Realkredit Danmark, Fitch

Amortisation Profiles of Assets and Bonds for Capital Centre T



Source: Realkredit Danmark, Fitch

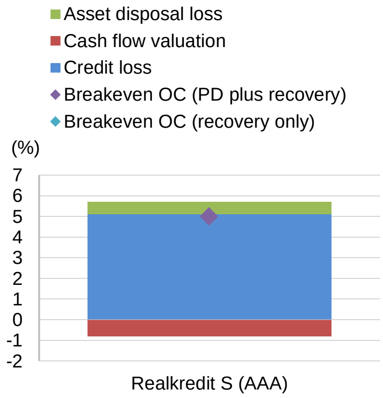
Breakeven OC for the Rating

The 'AAA' breakeven OC for CC S was revised to 5.0% from 6.0% mainly due to the lower level of the credit loss component as the 4.0% expected loss floor on the residential assets has been removed.

The 'AAA' breakeven OC supports 'AA+' stresses on a PD basis in Fitch's cash flow model and enables a one-notch recovery uplift to 'AAA'.

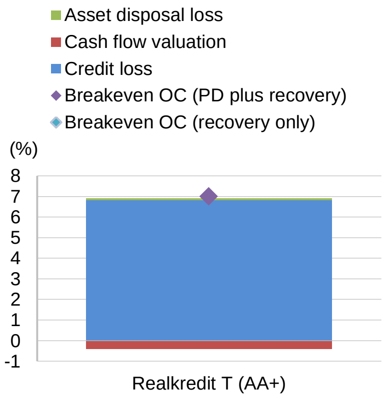
The 'AA+' breakeven OC for CC T was reduced to 7.0% from 8.0%, because of the lower foreclosure frequency adjustment assumption for ARMs in Fitch's updated *Denmark Residential Mortgage Rating Criteria Addendum*. This had a significant impact on Capital Centre T's residential pool as it is made of 92% of ARM loans. The 'AA+' breakeven OC level supports 'AA' stresses on a PD basis in Fitch's cash flow model and enables a one-notch recovery uplift to 'AA+'.

Breakeven OC Components



Source: Fitch

Breakeven OC Components



Source: Fitch

The 'AAA' breakeven OC for CC S of 5.0% is driven by the credit loss component (5.1% in a 'AA+' scenario). The asset disposal loss component is equal to zero as the cash-flows have been modelled according to a pass-through structure (97% of the outstanding bonds are callable as of October 2017). The model calculated an additional OC of 0.6% to ensure timely payment of interests from incoming cash flows. The cash flow valuation component lowers the breakeven OC by 0.8% (see table below), due to the excess spread in the programme. This comes from the administrative margins charged to borrowers. For more details on the assets margin, refer to Appendix 3 Originator and Servicer Operational Review.

The 'AA+' breakeven OC of 7.0% for CC T is driven by the credit loss component (6.8% in a 'AA' scenario). The asset disposal loss component is equal to zero as the cash-flows have been modelled as pass-through to reflect that 81% of the outstanding bonds have a maturity extension of 12 months at a time in case of refinancing failure (as per the 2014 refinancing trigger regulation). The model calculated an additional OC of 0.1% to ensure timely payment of interests from incoming cash flows. The cash flow valuation component lowers the breakeven OC by 0.4% (see table below) due to the administrative margins charged to borrowers providing excess spread.

Fitch's breakeven OC for the covered bond rating will be affected, among other things, by the profile of the cover assets relative to the outstanding covered bonds, which will change over time, particularly due to the addition of new assets and bonds as well as the refinancing of the variable-rate and ARM loans from CC S into CC T. Therefore, the breakeven OC cannot be assumed to remain stable.

Drivers of Cash Flow Valuation Component for Realkredit's Breakeven OC

	Capital Centre S		Capital Centre T	
Driver	**Assets**	**Covered bonds**	**Assets**	**Covered bonds**
WA current interest rate (%)	2.10	2.10	0.82	0.82
WA administrative margin (%)	0.65	n.a.	1.00	n.a.
WA administrative margin on commercial assets (%)	0.70	n.a.	1.01	n.a.
WA administrative margin on residential assets (%)	0.63	n.a.	0.99	n.a.
Worst case prepayment assumption (%)	25	n.a.	25	n.a.
WAL (years) under scheduled amortisation	14.2	0.3	14.3	2.5
WAL (years) including worst case prepayments	3.3		3.6	

Source: Fitch

OC Fitch Relies On

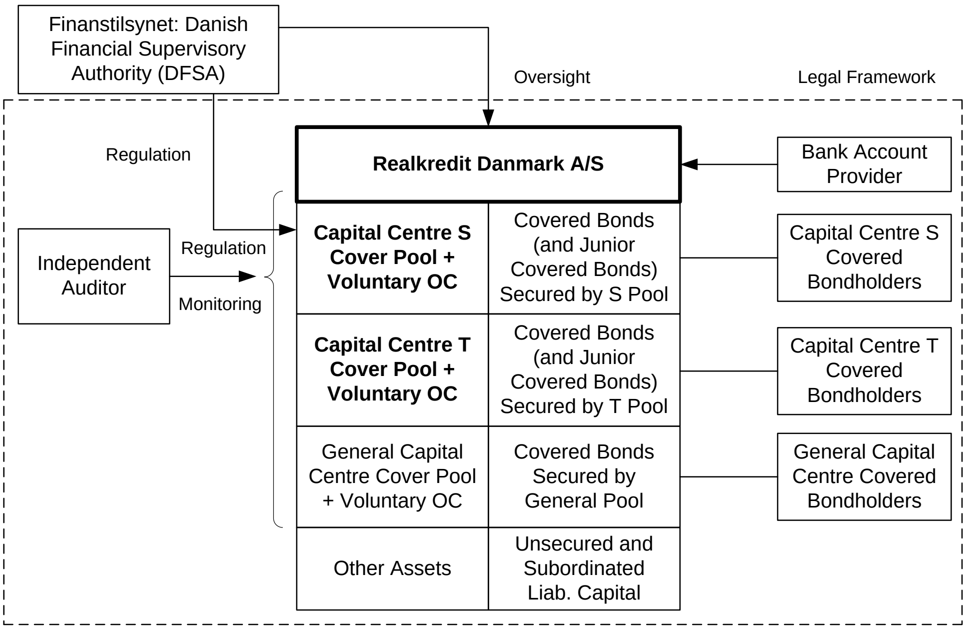
Fitch bases its analysis on the lowest OC over the past 12 months (6.5% for CC S for 3Q17 and 8.2% for CC T for 3Q17), which is published in the programmes' risk report on a quarterly basis. In addition, the agency understands from the issuer that it intends to maintain OC levels in the foreseeable future at or above the levels commensurate with the current ratings. After the rating action on the programmes on 30 November 2017, the nominal OC for CC S and CC T decreased to 6.1% and 7.5%, respectively, slightly above the updated agency's breakeven OCs for each capital centre in their respective rating scenario.

Programme Review

Fitch will periodically review the credit quality of the cover pool and perform a cash flow analysis to assess whether the OC taken into account by the agency provides protection against identified risks commensurate with the rating of the covered bonds issued by RD under this programme. Cover pool and covered bonds information will be updated regularly and displayed on Fitch's covered bond surveillance tool (available at www.fitchratings.com) and in the quarterly Covered Bonds Surveillance Snapshot.

Appendix 1: Programme Structure Diagram

Programme Structure Diagram



Source: Fitch

Appendix 2: Payment Continuity Risk

Liquidity or refinancing risk differs significantly depending on the covered bond type. Callable covered bonds and some variable-rate covered bonds have matching maturity assets and are practically pass-through securities. In contrast, non-callable bullet bonds and most variable rate bonds have significant maturity mismatches with the assets they finance and are therefore exposed to refinancing risk.

Refinancing takes place at auctions four times a year, with the highest proportion at the end of the year, creating a concentration of refinancing needs. At the January 2018 refinancing auction, Realkredit refinanced DKK57 billion of bonds. Realkredit intends to spread the auctions equally on a quarterly basis by 2021, which would lower, but not eliminate, the refinancing risk.

The legal framework addresses the possibility of refinancing post-insolvency of the issuer; however, the regulatory environment for mortgage banks post-insolvency has not been tested. Due to the importance of the instrument for the domestic financial system, Fitch deems an intervention by the authorities very likely, in case of need. Denmark's sovereign IDR is 'AAA', and the central bank has a large facility available to the banks that is comparable in size to the end-of-year refinancing needs of all mortgage banks.

The current liquidity mitigants in Realkredit's covered bond programmes, in particular with regards to hard-bullet covered bonds, provide limited protection against refinancing risk. The cover pools contain a limited amount of liquid assets. The OC is financed by equity and the issuance of section 15e senior debt, which is issued out of a capital centre but subordinated to the payments of the covered bonds of that capital centre. The OC has mostly been invested in Danish government securities and covered bonds, with a minority of Realkredit covered bonds. Following the implementation of the LCR, Realkredit is now limited in investing in its own covered bonds. Fitch gives credit in its analysis to securities that are external to the group.

Refinancing Regulation

In March 2014, new legislation was passed whereby newly issued mortgage covered bonds will include mandatory extension provisions, which would reduce liquidity risk associated with concentrated refinancing via bond auctions. The legislation entered into force on 1 April 2014 for bonds with a maturity of up to 12 months and on 1 January 2015 for the other bonds. The maturity of the bonds automatically extends by 12 months if one of two triggers fails: the refinancing fails (refinancing trigger) or the interest rate on the new bonds is 5pp higher than the bonds being refinanced (interest-rate trigger, only for bonds with up to two-year maturities).

Other Payment Continuity Risk Considerations

Asset Segregation

Fitch expects that ring-fencing of the cover pool will be effective when applying a PCU assessment higher than zero notches, given the "all-or-nothing" nature of this risk. The ring-fencing of cover assets to any claims from unsecured creditors of the defaulted financial institution is achieved by virtue of law – often in the form of an exemption to normal bankruptcy legislation or through a transfer of the assets to a bankruptcy-remote special-purpose vehicle acting as a guarantor of the issued covered bonds.

Asset Segregation: No Impact on PCU

Component driver	Fitch assessment
Segregation of cover pool from other creditors of issuer	As per regulatory requirements, the bank must keep assets which serve as security for covered bonds separately from other assets in capital centres. It achieves asset segregation in an issuer's insolvency via assignment of loans and its collateral to a specific capital centre. The claims under the loans then serve as collateral for the series of bonds issued out of this capital centre. Upon insolvency, all assets included in the register are for the benefit of the covered bondholders, and separated from the insolvency estate and managed autonomously by a dedicated trustee for the benefit of the bondholders until they receive payment in full. Covered bonds issued from a dedicated capital centre rank pari passu with one another, but do not cross-collateralise or cross-default with other capital centres, or with the issuer.
Excess OC immune from claims from other creditors	Upon insolvency of the issuer, cash-flows from assets in the capital centre are used to, repay claims under the covered bonds and pays expenses and fees (court fees of the insolvency administrator and costs related to the management, operation, collection and sale of the cover pool). If the assets in the capital centre are not sufficient to discharge all claims, then bondholders have a claim on the remaining estate of the bank, having priority over ordinary creditors. The covered bonds are not accelerated upon the default of the issuer. With respect to voluntary OC above the minimum regulatory threshold of 8% of risk-weighted assets, if the OC is formally allocated to the respective capital centre, then unsecured creditors would not have an access to OC until the covered bonds have been repaid in full.
Asset and liability claw-back risk	No risk of claw-back since all mortgages originated by Realkredit are allocated at inception to the capital centre.
Commingling risk	All borrowers make their mortgage payments into accounts held by Realkredit with Danske Bank, with a residual portion (less than 0.01% of current loan balance) with Nordea Bank AB (AA-/Stable/F1+) and Jyske Bank. The funds from Nordea and Jyske Bank are transferred occasionally (once or twice a year) to the Danish Central Bank. All received payments in the Danske Bank account (about 95%) and most of the payments kept in the Danish Central Bank are invested immediately in securities, primarily in Danish covered bonds. Bondholders are paid on the first day of the quarter. Danske Bank is the collection account bank and issuer account bank. Fitch did not account for the commingling risk in its analysis as it is rated A/F1, which is the minimum counterparty rating to support 'AAA' ratings in Fitch's counterparty criteria. Should Danske be downgraded below this level, Fitch would deduct the exposure at risk of being lost due to commingling of funds, unless remedial action is taken by Realkredit.
Set-off risk for deposits	Realkredit is a specialised mortgage lender that cannot take deposits. Consequently, no deposit set-off issues should arise. Even for a borrower with a mortgage loan with Realkredit and a deposit with its parent – Danske Bank – deposit set-off risk is not authorised under Danish covered bonds legislation for mortgages funded by covered bonds. Another mitigant is the fact that Realkredit and Danske are two different legal entities.

Source: Fitch

Alternative Management

Systemic Alternative Management

Fitch takes into consideration the framework or contractual clauses governing the appointment of a substitute manager – together with the length of time required to appoint one – any potential conflict of interest (in cases where a single administrator in a bankruptcy takes care of covered bonds and other creditors), the manager's responsibilities in the servicing and liquidation of the cover assets to meet payments due on the covered bonds and any further protection due to oversight or potential support for regulated covered bonds.

If Fitch assesses systemic alternative management to represent a high risk for payment continuity, the otherwise achievable PCU for the programme will be reduced by one notch if it is in the one- to three-notch range and by two notches if it is in the four- to eight-notch range.

In Fitch's view, systemic alternative management risk is low for these programmes, given the strength of the regulatory framework for covered bonds in Denmark and the involvement of the regulator in the appointment of the alternative manager.

Systemic Alternative Management: No Impact on PCU

Component driver	Fitch assessment
Administrator takes exclusive care of covered bondholders? When are they appointed?	An administrator (trustee) will be appointed by the Danish Financial Services Authority (FSA) upon or prior to insolvency of the mortgage lender. An alternative manager has the power to inter alia sell cover pool assets, take out loans and enter into repo agreements on behalf of the cover pool in order to make timely payment on covered bond obligations. This would facilitate actions the alternative manager may seek to take in meeting obligations. The FSA can intervene before insolvency of the mortgage lender, for instance if the bank is in breach of the 8% OC requirement (measured as a percentage of risk-weighted assets). At this point, the FSA will ask the issuer to restructure its activities or it will appoint an administrator to complete this restructuring.
Importance of timeliness of payments in the legal provisions	There is no automatic acceleration of the covered bonds. If mortgage payment proceeds are not sufficient to cover interest and principal payments, then the trustee has the right to look for alternative solutions such as selling assets or using repo. However, the trustee is not obliged to sell, as there is no acceleration. If the funds are not sufficient, then only interest on the notes will be paid and principal due will be paid on a pro-rata basis. If there are no sufficient funds to cover interest payments, then the interest on the notes will be allocated on a pro-rata basis. There could be a risk of time subordination, as the bonds with the longest maturity will be paid the last.
Substitute manager able to sell cover assets or borrow to make timely payments	Yes, the trustee has the right to sell assets. If bankruptcy proceedings are initiated against the issuer, a trustee appointed by the bankruptcy court will administer the cover assets. As mortgage bank creditors are essentially bondholders, no separate administrator is appointed. The trustee may re-establish the issuer, if possible, and is not necessarily required to dissolve the mortgage bank. Most importantly, the trustee is ordered by law to meet all payment obligations under the mortgage bonds according to their original schedule. If payments from cover assets (residential mortgage and overcollateralisation) are insufficient to meet the payment obligations, the trustee has the authority to raise additional loans or issue refinancing bonds.
Regulatory oversight	High oversight from the FSA, which also supervises compliance with the legislative framework for conducting mortgage banking activities, as well as the issuance of covered bonds. On a quarterly basis, the issuers have to provide the FSA reports on credit risk exposures, market risk exposures, solvency and asset and liability management. Data from every loan granted by Danish mortgage banks, as well as property valuations, are also reported to the FSA quarterly. Mortgage bank inspections are regularly undertaken by the FSA. The FSA performs random checks of mortgage banks' valuations by way of on-site reviews and by checks of the internal valuation reports. The FSA must be informed of any balance principal breaches without delay. If the capital requirement is not observed, the FSA must also be informed without delay. The FSA has the authority to issue an order with which the issuer must comply. In case of severe or multiple breaches of Danish law or of such orders, the FSA may revoke the operating licence and dismiss the management of the issuer.

Source: Fitch

Cover-Pool-Specific Alternative Management

Fitch focuses on the likely ease of the transferability of relevant data and IT systems to an alternative manager and buyer, with such quality and ease also judged on the quality and quantity of data provided to Fitch.

If Fitch assesses cover-pool-specific alternative management to represent a high risk, we will lower the programme PCU driven by its liquidity protection. It will reflect a greater link to the Long-Term IDR of the issuing institution via a reduction of one notch if the otherwise achievable PCU is in the one- to three-notch range and two notches if it is in the four- to eight-notch range.

Cover Pool Alternative Management: No Impact on PCU

Component drivers	Fitch assessment
Cover assets, debtors' accounts and privileged swaps clearly identified within IT systems	Mortgage loans and the respective cash-flows are easily identifiable. All mortgage loans bear a unique identification code. Over 99% of cash-flows are identifiable on the day of the reception and the reset is reconciled within the following day.
Standardised or custom-made IT systems used.	Realkredit IT systems were developed in-house and were integrated with Danske's IT systems following its merger in 2001. A mirror IT system (back-up IT system) is run by Danske. This system is tested twice a year.
Automation and speed of cover pool reporting	Risk management report, including reports on pool balance and loans in arrears can be produced on a daily basis. Pool-cut level data can be produced within five days, however, some fields such as estimated property value (AVM) would be updated on a monthly basis.
Adequate filing of loan documentation, evidence of security	All documentation is kept in electronic format. With respect to old loans, the documents are scanned. As to the newly originated loans, application is signed electronically.

Source: Fitch

Privileged Derivatives

Privileged Derivatives: No Impact on PCU

Component drivers	Fitch assessment
Replacement provision of swap counterparties post issuer default	Not relevant as no derivatives in place in the programme due to the specific balance matching principle between assets and liabilities which provide a 'natural' foreign-exchange and interest-rate hedge
Intra-group or external counterparties	See above.
Magnitude of swap exposure. Is it standard?	See above.
Termination payments to swap counterparties raking pari passu with covered bonds	See above.
Cover assets isolated in an SPV or under an integrated template	See above.

Source: Fitch

Appendix 3: Originator and Servicer Operational Review

Origination and Underwriting

Origination volumes have increased in 3Q17 by DKK12 billion. Remortgage activity was at the same level as 3Q16. There was a decline in ARM loans with interest reset frequency below five years while demand for fixed-rate loans continued to be strong.

Realkredit originates mortgage loans through Realkredit and Danske Bank branches across the country. The following mortgage products (residential and commercial loans) are offered by Realkredit to all its customers (private individuals or companies).

Mortgage Products

	Fixed rate	FlexLan (ARM)	FlexGaranti	Floating rate	Rentedyk or ratchets	FlexKort	FlexLife
Interest rate type	Fixed	Variable	Floating with cap	Floating	Variable	Variable	Variable
Base rate	n.a.	n.a.	6M Cibor	6M Cibor or 3M Euribor	10-year swap rate	6M Cita rate	n.a.
Maturity	1-30 years	1-30 years	1-30 years	1-30 years	1-30 years	1-30 years	1-30 years
Repayment	Annuity or IO	Annuity or IO	Annuity or IO	Annuity or IO	Annuity or IO	Annuity or IO	Annuity or IO
Payment frequency	Monthly or quarterly	Monthly or quarterly	Monthly or quarterly	Monthly or quarterly	Monthly or quarterly	Monthly or quarterly	Monthly or quarterly
Prepayment options	Call and delivery	Delivery	Call (105%) and delivery	Delivery	Call (105%) and delivery	Delivery	Delivery
Currency	DKK	DKK or EUR	DKK	DKK or EUR	DKK or EUR	DKK or EUR	DKK or EUR
Bonds	Matching terms	Maturity mismatch	Maturity mismatch	Maturity mismatch	Matching terms	Maturity mismatch	Maturity mismatch
Introduced	1940	1996	2004	2005	2007	2013	2017

Source: Realkredit

Mortgage loans have an annuity redemption profile. However, borrowers can opt for a 10-year interest-only period which can be exercised at the discretion of the borrower, providing they give several months' notice. Maximum maturity is 30 years.

Borrowers have two prepayment options;

- a call option allows the borrower to prepay at par or 105% (FlexGaranti and Ratchets) at any time. This option is exercised when a borrower wants to take advantage of lower/falling interest rates; and
- a delivery option can be exercised by purchasing the outstanding bond in the market at any time. This option is exercised if bond prices fall below par.

The underwriting of mortgage loans follows the following steps:

- application scoring, which is driven by borrower behaviour, credit history and affordability tests. There are different scoring models for home owners and companies;
- approval of the loan application by the loan officer;
- property valuation; and
- formal loan approval.

FlexKort Loan

Realkredit launched new variable loans based on the CITA rate in October 2013. At present, such loans are funded by three-year mortgage bonds. The outstanding volume of this type of floating-rate loans was expected to increase over time to lower the volume of ARM loans but the CITA loans represent a small part of the portfolio (about 5% at end-1Q17).

FlexLife Loan

In September 2017, Realkredit launched a new product called FlexLife which is meant to provide more flexibility to the borrowers in terms of repayment profile and term to maturity. It targets less risky customers. It is an adjustable rate mortgage and thus funded by non-callable bonds. The loan-value (LTV) requirement is 75% with mandatory repayments till the LTV reaches 60% from which the amortisation profile may be switched to interest-only with a 30-year maturity. The margin is marginally higher (+5bp) than for ordinary ARMs with an interest-only option (for an LTV up to 60%). This represents the cost to have an interest-only period of up to 30 years. This was launched with the expectation to distinguish from competition with a new product and attract new customers.

Supervisory Diamond for Mortgage Banks

On 11 September 2014, the FSA published a new set of macro-prudential tools addressed to mortgage banks called 'Supervisory Diamond for mortgage banks', completing the existing Supervisory Diamond for banks since 2010. It specifically targets mortgage banks' credit risk on lending and access to funding. It includes set limits on the five following areas which should be monitored on a quarterly basis: lending growth, concentration risk, interest-only loans, loans with short-term funding and borrower's interest-rate risk. Realkredit has defined internal limits for each of the five requirements that are stricter than the regulatory ones. The benchmarks for interest-only lending and loans with short-term funding will apply from 2020 while the other benchmarks apply from 2018.

Since 2015, Realkredit has been focusing on reducing the origination of loans with short-term funding and limiting interest-only loans.

LTV Limits

Realkredit offers mortgage loans up to the limits defined by the covered bond regulation (please see Appendix 6). A borrower can take out an additional bank loan above this LTV limit with Danske or any other bank, which will be secured by the same property but which will rank second regarding any foreclosure proceeds.

Property Valuation

For homeowner properties, only a full valuation conducted within the most recent six-month period, or an automated valuation model (AVM) valuation (for mainstream properties) is accepted.

- Full valuations can be carried out either by a real estate agent or a bank employee (who is independent from the underwriting process).
- Realkredit's AVM models have been developed in-house and reviewed by the FSA. Such models are accepted for mainstream properties, without the need for a further haircut.
- The issuer has to report all new property valuations to the FSA.

As regards other properties, a full valuation by a qualified bank employee independent from the underwriting process is required. Depending on the property type, there are three valuation methods:

- net rentals based on the lowest of the actual rent and market rent, and observable yields on recent sales;
- net income before depreciation and financial costs; and
- market value on recent sale of similar properties.

In line with regulatory requirements, residential properties are revalued using either a full valuation or an AVM every three years, while commercial properties are revalued annually.

LTV Limits and Valuation Methods

Property type	Max LTV (%)	Valuation methodology
Residential	80	Full valuation or AVM
Residential rental	80	Capitalisation of net rentals
Second or holiday home	75[a]	Full valuation or AVM
Subsidised housing	90+ (exposure exceeding 80% is guaranteed by the municipality)	Capitalisation of net rentals
Industry	60	Capitalisation of net rentals
Agriculture	60	Market value
Business	60	Capitalisation of net income

[a] Please note that the LTV limit for holiday homes have been increased to 75% from 60% in May 2017. This was initially recommended by the Danish Parliament to boost activity in this sector which had slowed down over the recent years.

Source: Realkredit

Affordability Testing

An affordability test is part of the initial borrower assessment process. The affordability check takes into account the minimum disposable income requirements and the ability of the borrower to meet monthly debt payments. Regardless of the redemption profile and the interest rate on the mortgage loan, the borrower should be able to afford an annuity loan bearing the highest rate charged by the bank at the time of underwriting (30-years' fixed interest rate). In practice, the maximum loan-to-income ratio is about four times. For self-employed borrowers, affordability is assessed based on a one-year annual statement by a specialised underwriting team.

Given the low-interest-rate environment in Denmark, affordability rules have become looser. As such, Danish banks, including Realkredit, are required under national law to perform an additional affordability test at origination. This involves a down-payment of 5% of the property price and external costs to be self-financed by the customer, but exceptions apply.

To limit borrowers' indebtedness, an additional affordability test was introduced in 2015 for customers seeking a mortgage backed by a property in so-called growth areas, generally urban regions. The additional test already applies in the Copenhagen region and Aarhus. It requires borrower's affordability to be tested assuming a 30-year fixed-rate loan annuity at the higher of (i) the 30-year fixed rate on mortgages that applies at the time of origination plus one percentage point and (ii) 4%.

A new lending guidance – initially targeting growth areas in Denmark, but amended to include the whole country – has been in effect since January 2018. It stipulates that mortgage loans made to borrowers with a debt-to-income ratio above 4x and an LTV ratio above 60% must have limited exposure to short-term interest rates (i.e. an interest reset frequency of at least five years) and must amortise if they are not at a fixed rate.

Margins

Margins for residential loans are standardised, depending on the LTV level at origination and the type of mortgage product. For illustration, fixed-rate mortgages are offered at a low margin, whereas interest-only mortgages or ARM products with higher interest reset frequency tend to be offered at a higher margin. This is line with the bank's strategy to encourage demand for loans with lower refinancing frequency.

Margins for commercial loans are determined on a case-by-case basis and are not standardised. Historically, agriculture has been the industry with the highest margin due to an elevated level of credit risk (about 120bp as of 1Q17) even though the trend is improving due to higher selling prices for milk and pork and lower cost of grain. Margins for subsidised housing are determined by Danish law and have been stable at 30bp, at the lowest level of the commercial assets margins.

Administrative margins on residential products have stabilised after a substantial increase in

October 2016 by up to 25bp on ARMs with interest reset frequency of less than five years. The increase was meant to de-incentivise borrowers from products with refinancing risk, in line with one of the five pillars of the Danish Supervisory Diamond.

Additionally, the required notice period for a change in administrative margin has lengthened to six months from three months to ease transparency and borrower's mobility. Danish banks now have to give a reason to justify such a change.

Credit History

Borrowers with an adverse credit history are not accepted. The following credit checks are in place:

- RKI, a centralised credit database owned by Experia, which keeps records of all bad debts. The records are kept for two years after the debt is repaid;
- land registry; and
- credit history with the Danske Group.

Servicing

Primary and special servicing is performed in-house. Mortgage payments are collected with a unique loan identification code, allowing Realkredit to allocate payments directly. If a borrower pays via cash or cheque without reference to the unique loan identification code, or if the payment is insufficient, then all incoming payments will be allocated according to the loan ranking, ie first-lien first, second-lien second.

Overall, the treatment of non-performing mortgage loans is considered efficient. Realkredit's legal counsel is involved after one month of missed payments. Unless a restructuring solution is found, the property is sold in nine to 12 months after the first arrears.

Appendix 4: Issuance Template

Structure

Realkredit is subject to the Danish legislation on banking activities, whereby mortgage banks may only grant mortgage loans that meet the cover asset requirements imposed by such legislation (see Appendix 6 'Legal Framework' for more details) and may fund their activities through the issuance of covered bonds.

The cover assets are held on the issuer's balance sheet. Bonds and assets are assigned to individual capital centres upon origination and can be transferred between capital centres at the time of refinancing.

Covered bonds issued via programmes set up by specialised mortgage lenders are usually referred to as traditional Danish covered bonds. For these bonds, the issuer acts mostly as an intermediary between a borrower and an investor, and does not set the rate on the mortgage loans. The rate on the mortgage loans equals the interest rate on the bonds plus a margin and the interest rate on the mortgage loans is therefore effectively set by the investor at the time of issuance and/or the refinancing auction. According to the mortgage loan terms, borrowers make principal and interest payments to the mortgage bank, which transfers the payments to the investors. As a result, the issuer is not directly affected by any changes in the interest rates, other than through the increased risk of borrower's default when interest rates rise.

Mortgage banks charge the borrower an administrative margin to cover daily operating costs and any losses. The margin is not fixed and can change over the term of a loan, depending on the bank's strategy, regulatory requirements and market conditions. The required notice period to change the margin was increased in 2017 to six months.

Matched Funding

Traditionally, there has been an alignment of funding between mortgage assets and bonds, in terms of the interest rate, maturity and amount. For instance, if a borrower took out a fixed-rate loan for 30 years, it would be funded by a fixed-rate 30-year bond.

In the 1980 and 1990s, new mortgage products, such as ARMs and other variable-rate loans, were introduced and now represent about 40% of the market. These mortgage products usually offer lower interest rates than fixed-rate loans, as they are funded by the issuance of bonds with shorter maturities than the loan terms, creating a refinancing need when they mature. The interest rate on the loans is fixed at the time of refinancing.

In the case of Realkredit, the matched funding principle applies to the interest period between refinancing, which is mostly between one and five years. At the time of refinancing, a new interest rate is set when a new covered bond is issued. In the past, refinancing took place at the end of the year, but, more recently, issuers have been spreading refinancing auctions throughout the year. Realkredit carries out four refinancing auctions a year, on the first day of every quarter.

Covered Bond Types

Realkredit Covered Bond Types

Characteristics	Traditional – callable bond	Non-callable bullet bond	Variable-rate bond
Interest rate type	Fixed	Fixed	Variable
Interest payments frequency	Quarterly	Annual	Quarterly
Repayment	Annuity or interest-only	Bullet	Annuity or interest-only
Maturity	10-30 years	1-11 years	5-30 years

Source: Realkredit

Callable Bonds

These are the oldest Danish covered bond and practically a pass-through security. Callable bonds feature matching maturities in terms of the underlying assets and there is no refinancing risk. Such bonds have a fixed rate and a quarterly payment frequency.

Non-Callable Bullet Bond

These represent the largest segment of the covered bonds market. These bonds bear a fixed rate but do not feature maturity matching assets. Such bonds are secured by long-term mortgage loans and ARMs, and hence can be exposed to refinancing risk. Interest on the bonds is paid annually.

Variable Rate Bonds

Variable rate bonds, represent a smaller part of the covered bond market (4% in CC S and 23% in CC T), and are targeted at corporates. They are secured by floating-to-fixed and capped floating mortgage loans, ARMs featuring ratchet coupons, floating-rate mortgage loans and other loan types. Most of these bonds are exposed to refinancing risk.

Refinancing Regulation

To reduce the refinancing risk, the legislation was amended in April 2014. It applies to newly issued bullet bonds and floating-rate bonds where the term of the loans is longer than the maturity of the funding bond. This amendment introduced a soft-bullet mechanism with two triggers: a refinancing failure and an interest-rate increase of more than 5pp at the refinancing auction (for bonds with an initial maturity of up to two years). If one of the two triggers occurs the bonds' maturities are extended for 12 months with an interest rate equal to the interest rate on the bonds before the refinancing plus 5pp.

Appendix 5: Commercial Mortgage Loss and Cash Flow Assumptions

In its analysis of commercial mortgage loan portfolios, which include agriculture, business, private rental and multifamily mortgage loans, Fitch relied on its *Commercial Real Estate Loans Securing Covered Bonds Rating Criteria* (November 2017) and its *SME Balance Sheet Securitisation Rating Criteria* (February 2018). The asset analysis was performed using the Portfolio Credit Model (PCM).

Default Rate

Fitch derived the expected default rate for the commercial pool taking into consideration default and loss data provided by Realkredit and the macroeconomic developments in the country. As was done for the last analysis in 1Q17, Fitch differentiated the PD treatment between social and cooperative housing assets and the other commercial segments' assets.

Commercial Segment

The expected average one-year default rate (90 days' past due) for a performing commercial mortgage portfolio was assumed to be 1.75%, which is at the lower end of the assumptions used for commercial mortgage portfolios in other European jurisdictions (in the 1.75%-6.5% range, see *SME Balance Sheet Securitisation Rating Criteria*).

Fitch used Realkredit's credit scoring to distribute the assets' one-year PD around the benchmark, applying a 0.5% floor to each asset's default probabilities. The one-year PDs were then combined with Fitch's long-term PD curves and with the maturities of the assets to derive long-term PD assumptions for each of the commercial assets in the pool. The foreclosure frequency rates were then derived based on the default rate outputs from PCM and applying a cure rate of 7.5% in a 'AAA' scenario and up to 50% in a 'B' scenario. We took into account Realkredit's observed cure rate and stressed it in line with our criteria.

Social and Cooperative Housing

Mortgage loans to social and cooperative housing represent about 16% of CC S cover pool balance and about 7% of CC T cover pool balance. Given the very good performance observed for these segments, the analysis differentiated the PD applied to these segments.

The expected average one-year default rate assumed for the performing social and cooperative housing mortgage sub-portfolio was 0.5%.

Fitch used Realkredit's credit scoring to distribute the assets' one-year PD around the benchmark, without applying a PD floor to the default probabilities. The one-year PDs were then combined with Fitch's long-term PD curves and with the maturities of the assets to derive long-term PD assumptions for each of the subsidised housing assets in the pool. The foreclosure frequency rates were then derived based on the default rate outputs from PCM and applying a cure rate of 7.5% in a 'AAA' scenario and up to 50% in a 'B' scenario.

Most of the social housing loans benefit from a guarantee from local municipalities or the Danish state. The state contributes to the borrower's payment and the municipality provides a loss guarantee to Realkredit.

The guarantee can differ according to the disbursement of the loan. Mortgage loans granted prior to 2007 have a loss guarantee of up to 28.5% of the principal. Mortgage loans disbursed after 2007 have guarantees that cover the part of the loan that exceeds 60% of the property value. Furthermore, a 100% guarantee is granted from the municipality for major renovation works. This results in an average guarantee of about 50%.

The strong governance structure covering social housing explains the limited number of losses in this segment. In the past three years, Realkredit has only called guarantees three times, with a total value of DKK6 million.

Fitch did not give full credit to guarantees provided by municipalities on subsidised housing loans in a stressed scenario; rather, it conservatively assumed a 50% credit to these partial guarantees in a 'AAA' scenario, 71% in 'AA' category scenario and 95% for the other scenario.

Recovery Rate

With respect to recovery rates, Fitch derived a stressed property value by applying market value decline (MVD) assumptions based on Realkredit repossession data and Fitch's stressed property price decline. The MVD assumptions used for the analysis of Realkredit's commercial mortgage portfolio are detailed in the table below.

MVD Assumptions for Commercial Properties

(%)	AAA	AA	A	BBB	BB	B
Agricultural	65	62	60	57	52	45
Business	65	62	60	57	52	45
Industrial	75	71	69	65	58	50
Multifamily/rentals	65	62	60	57	52	45
Subsidised housing	53	49	45	41	37	33

Source: Fitch

Cash-Flow Assumptions

Transaction and Servicing Costs

Servicing fee assumptions are applied in Fitch's cash-flow model to take account of the capital centre expenses and the costs of engaging a replacement servicer in the event of a servicer default in a stressed environment.

Transaction and Servicing Costs Assumptions

	AAA	AA	A	BBB	BB	B
Servicing costs (%)	0.40	0.30	0.25	0.20	0.20	0.20

Note: The fees are applied to the outstanding portfolio balance, including performing, delinquent and defaulted loans
Source: Fitch

Prepayment Rates

In its cash-flow model, Fitch applies prepayment rate (ie voluntary early repayment) assumptions to the portfolio's performing principal balance to determine the excess spread available in each capital centre.

It also tested high and low prepayment assumptions in the portfolio credit model for the commercial sub-pool analysis. This allows for consistency with the assumptions used in the cash flow model for those assets.

The low prepayment assumption for commercial mortgages is 0.0% (see the *Commercial Real Estate Loans Securing Covered Bonds Rating Criteria* published in November 2017). The high prepayment assumptions have been derived from historical data obtained from Realkredit and stressed depending on the rating scenario. They are between 15.0% and 25.0%.

Prepayment Assumptions (%)

Commercial mortgages

	AAAsf	AAsf	Asf	BBBsf	BBsf	Bsf
High prepayment	25.0	22.5	20.0	17.5	15.0	15.0
Low prepayment	0.0	0.0	0.0	0.0	0.0	0.0

Source: Fitch

Foreclosure Timing

Fitch assumes that the foreclosure process will take 36 months across all rating scenarios.

Appendix 6: Legal Framework

Main Characteristics of Danish Covered Bonds

The Danish Covered bond legislation 2007 (1 July 2007)

Type of Danish covered bonds	There are three types of Danish covered bonds • Realkreditobligationer (RO): oldest type of bond, issued by mortgage banks only, UCITS-compliant , but not CRR-compliant if issued after 31 December 2007 • Særligt Dækkede Realkreditobligationer (SDRO): issued by mortgage banks only, both UCITS- and CRR-compliant, a minimum OC of 8% of risk-weighted assets applies. • Særligt Dækkede Obligationer (SDO): implemented in 2007 following changes in legislation, can be issued by both commercial banks and mortgage banks, both UCITS- and CRR-compliant; a minimum OC of 8% of risk-weighted assets applies (only to mortgage bank issuers).
Issuers	• Specialised mortgage institutions. They can issue all types of Danish covered bonds (RO, SDRO and SDO). • Ship financing institutions for loans backed by ships. • Since 2007, commercial banks. They can only issue SDO.
Supervision	Danish Financial Supervisory Authority. Roles: • Licenses mortgage banks, commercial banks and ship financing institutions to issue covered bonds; • Operates the general banking supervision; • Issuers have to report to the FSA on a quarterly basis: ○ for mortgage banks, they must communicate data for each individual loan offer, all property valuations associated with new lending ○ for commercial banks ,they must report the registered assets and make the registered assets statement verified by an external auditor • May operate random checks such as on-site inspections or checks of the internal valuation reports; • Issuers must send to the FSA on a quarterly basis a comprehensive report with regard to the Assets Liabilities Management. In case of balance principle breaches, the FSA must be notified without delay; • Issuers must report to the FSA on its capital adequacy. If the requirements are not met, the FSA must be notified without delay; • May issue an order to which the issuer must comply; • May declare a mortgage bank bankrupt. In that case, a trustee in charge of looking after the interests of the estate of the capital centre must be appointed; • May revoke the operating license in case of breaches of Danish law or severe orders.
Balance principle or matched-funding	It is meant to ensure a close connection between the cash flow received from the borrowers and the cash flow due to the bondholders.
General versus specific balance principle	It is at the discretion of the issuer to comply with either the general balance principal (European-style ALM requirements for covered bonds) or the specific balance principle. The general balance principle was introduced in legislation in 2007.
Tap Issuance	For mortgage banks, mortgage bonds issuance is the only funding source of mortgages. Issuances take place daily by the way of tap issuance. Each loan originated in a day is matched in terms of cash flow of interest (and principal for the 30-year fixed-rate bonds) with the mortgage bonds issued that day. This ensures that the balance principle is maintained on a daily basis.
Dual recourse	1) To the assets of the capital centre, including OC in the case of mortgage banks. 2) To the issuer and, post insolvency, to the insolvency estate of the issuer, before other creditors for specialised mortgage banks or pari passu with other senior creditors for commercial banks.
Minimum overcollateralisation	Danish legislation does not specify an absolute nominal OC requirement. However, capital requirements have to be fulfilled at the capital centre level and at the institution level for mortgage banks and translate into a mandatory OC level of at least 8% of risk-weighted assets. For commercial banks there is no minimum mandatory OC. The OC can be funded by equity and senior debt. In practice, it is mostly invested in securities.

Main Characteristics of Danish Covered Bonds (Cont.)

The Danish Covered bond legislation 2007 (1 July 2007)

Asset segregation principle	Assets used to cover the bonds have to be segregated into independent cover pools referred to as capital centres for mortgage banks and cover registers for commercial banks.
Cover register	In order to be used as cover assets, mortgages have to be entered in the Danish Land Register. Since 2012, the register is digital.
Eligible assets (including substitute assets)	• Loans granted against mortgages on real property; • Exposure to public authorities: ○ bonds and debt issued by or guaranteed by central government, central banks, public entities, and regional and local authorities in the EU/EEA; ○ bonds and debt issued by or guaranteed by multilateral development banks or international organisations if risk-weighted 0% (or risk-weighted 20%, provided they do not exceed 15% of the outstanding covered bonds). • Bonds and debt issued by credit institutions if risk-weighted 20%, provided they do not exceed 15% of the outstanding covered bonds; • Mortgages on ships (only for commercial banks; a register may not include assets secured on both real estate and ships); • Other assets eligible for covered bonds financing according to the CRD, if allowed by the FSA; • In practice, supplementary collateral is made of exposure to public authorities and covered bonds.
Property valuation	• Based on the open market value of the property; • Performed at an on-site inspection, as part of the processing of each loan application to assess the compliance with regulatory LTV requirements; • Must be performed by a valuation officer of the issuer; The initial valuation must be a physical valuation or, if an exemption is granted by the FSA, a valuation from a valuation model; • May be outsourced if specific conditions are met; • AVMs have been approved in 2005 by the FSA as a valid valuation method for residential properties and second or holiday homes; • Residential properties must be re-valued once every three years, while commercial properties must be re-valued annually.
Loan-to-value limits for mortgage loans	• ≤ 80% for residential real-estate loans with up to 30 years' maturity and 10 years' interest-only period; • ≤ 75% for residential real-estate loans with up to 30-year interest-only period and for holiday real-estate loans; • ≤ 60% for commercial, agricultural and real-estate loans for commercial use. In some cases, the LTV requirement can be increased to 70% if the bank adds additional collateral. These limits are to be complied with at the individual loan level, both at loans' origination and during the loans' lifespan (for SDROs and SDOs only). The part of mortgage loans above the limit is excluded from the calculation of the over-collateralisation (for SDROs and SDOs only). If house prices decline and LTVs increase above this threshold, the issuer must add supplementary collateral in the respective capital centre.
Possibility to issue junior covered bonds	• Junior covered bonds can be issued to obtain funding for supplementary security to ensure compliance with the LTV requirements or to increase the overcollateralisation of a capital centre; • Their payment is subordinated to the one of covered bonds but also benefit from dual recourse to both the assets of the cover pool and the insolvent estate of the issuer; • Carry a risk weight of 20%; • Are repo-eligible with the Danish Central Bank.
Treatment of swap counterparties	Derivative counterparties rank pari passu with covered bondholders when derivative contracts were concluded with the purpose of hedging cash flows between assets and liabilities. Payments cannot be accelerated and terminations are not allowed in case of bankruptcy of the issuer.

Main Characteristics of Danish Covered Bonds (Cont.)

The Danish Covered bond legislation 2007 (1 July 2007)

Trustee for capital centres & alternative manager for registers	**Mortgage banks** • If the issuer is declared bankrupt, a trustee in bankruptcy is appointed; • The trustee is in charge of looking after the interest of the existing bondholders and borrowers. **Commercial banks** • Upon bankruptcy of the issuer, the FSA will decide whether appointing an administrator in charge of the assets of the register is necessary.
Resolution	Resolution is aiming for minimum changes for both bond investors and borrowers. It means the position of covered bond holders and borrowers has to remain essentially as if the capital centre was still a going concern. No acceleration of payments. Trustee may not issue new loans or expand business if the issuer's licence has been withdrawn. However, it may issue bonds to refinance maturing bonds if there are insufficient funds to satisfy the claim of creditors. **Implementation of the BRRD into the Danish legislation** • It introduces a debt buffer requirement of 2% of unweighted loans, to be fulfilled by 2020; • Resolution powers split between two entities: the Danish FSA and the resolution authority (Finansiel Stabilitet A/S, which is owned by the Danish State through the Ministry of Business and Growth). The Danish FSA can intervene at an earlier stage than before in order to increase the chance of recovery. Finansial Stabilitet intervenes later on to set up a resolution scheme and has four main resolution tools and associated powers to apply them; • In case of resolution, the debt buffer can be used by the resolution authority to recapitalise the mortgage banks when using BRRD resolution tools, only on the principle of "no investor worse off". • Four new BRRD resolution tools: ○ Sale of business: possibility to transfer the shares/assets/liabilities/rights of an institution to a third party; ○ The bridge institution: possibility to transfer the shares/assets/liabilities/rights of an institution to a subsidiary of Finansiel Stabilitet, the bridge institution; ○ Asset separation: possibility to transfer portfolios of assets/rights/liabilities of an institution / bridge institution to an asset management vehicle; ○ Bail-in tool (only for commercial banks): possibility to reduce the principal amount of liabilities/convert liabilities into equity.
CRR & UCITS compliance	• ROs are compliant with the covered bonds definition in the Undertakings for Collective Investment in Transferable Securities (UCITS) Directive but not with the Capital Requirements Regulation (CRR); • SDOs and SDROs are compliant with the CRR and the UCITS Directive.
Right to early repayment at anytime	Borrowers have the right to prepay their loans by buying back the underlying bond. The price is determined by the market (current interest rate), subject to a cap at the par value for callable bonds.

Source: Danish Covered Bond legislation

The ratings above were solicited and assigned or maintained at the request of the rated entity/issuer or a related third party. Any exceptions follow below.