

Transaction Update: Realkredit Danmark A/S (Capital Center S Mortgage Covered Bond Program)

Primary Credit Analyst:

Andreas M Hofmann, Frankfurt + 49 693 399 9314; andreas.hofmann@spglobal.com

Secondary Contact:

David Benkemoun, Frankfurt + 49 69 3399 9162; david.benkemoun@spglobal.com

Table Of Contents

Major Rating Factors

Outlook

Rationale

Program Description

Rating Analysis

Potential Effects Of COVID-19

Related Criteria

Related Research

Transaction Update: Realkredit Danmark A/S (Capital Center S Mortgage Covered Bond Program)

Ratings Detail

Reference Rating Level	aa-	+	Jurisdiction-Supported Rating Level	aaa	+	Maximum Achievable Covered Bond Rating	aaa	=	Covered Bond Rating	
Resolution Regime Uplift	+2		Assigned Jurisdictional Support Uplift	+3		Collateral Support Uplift	+3		AAA/Stable/A-1+	
Systemic Importance	Very Strong		Jurisdictional Support Assessment	Very Strong		Overcollateralization Adjustment	-1		Rating Constraints	aaa
Resolution Counterparty Rating	A+		Legal Framework	Very Strong		Liquidity Adjustment	0		Counterparty Risk	aaa
Issuer Credit Rating	A*		Systemic Importance	Very Strong		Potential Collateral Based Uplift	+4		Country Risk	aaa
			Sovereign Credit Capacity	Very Strong						

*In our analysis, we uplift the rating from the issuer credit rating on the parent Danske Bank A/S.

Major Rating Factors

Strengths

- Jurisdiction-supported rating level (JRL) of 'aaa', resulting in a relatively low level of overcollateralization required to maintain the 'AAA' long- and 'A-1+' short-term ratings.
- The capital center's match-funded structure eliminates asset-liability mismatch and helps to mitigate liquidity risk.

Weakness

- Aside from the legislative minimum, there is no other commitment regarding available overcollateralization in the cover pool.

Outlook

S&P Global Ratings' stable outlook on its ratings on Realkredit Danmark A/S' Capital Center S mortgage covered bonds reflects the fact that we would not automatically lower our ratings on the covered bonds if we were to lower the issuer credit rating (ICR) on Danske Bank A/S, Realkredit Danmark's parent company, up to three notches. This is because the program benefits from three unused notches of uplift (see "Covered Bonds Criteria," published on Dec. 9, 2014).

Rationale

We are publishing this transaction update as part of our review of Realkredit Danmark's Capital Center S mortgage covered bond program.

Our covered bonds ratings process follows the methodology and assumptions outlined in our covered bonds criteria.

From our analysis of the legal and regulatory framework for covered bonds in Denmark, we believe that the assets in Realkredit Danmark Capital Center S cover pool are isolated from the risk of the issuer's bankruptcy or insolvency. This asset isolation allows us to assign a higher rating to the covered bond program than the long-term ICR on Danske Bank. Although the issuer of the covered bonds is Realkredit Danmark, we use the rating on Danske Bank A/S as the starting point of our analysis. This is because we consider Realkredit Danmark to be a core entity of Danske Bank.

Danske Bank is domiciled in Denmark, which has implemented the EU's Bank Recovery and Resolution Directive (BRRD). We consider that mortgage covered bonds have a very strong systemic importance in Denmark. These factors increase the likelihood that Danske would continue servicing its covered bonds without accessing the cover pool or receiving jurisdictional support, even following a bail-in of its senior unsecured obligations. Therefore, under our covered bonds criteria, we assess the RRL as the higher of (i) two notches above the long-term ICR; and (ii) the resolution counterparty rating (RCR). Given that the assigned RCR for Danske Bank is 'A+', the RRL is 'aa-', which reflects the two notches of uplift from the ICR.

We consider the likelihood for the provision of jurisdictional support. Based on very strong jurisdictional support assessment for mortgage programs in Denmark, we assign three notches of uplift from the RRL. We assess the jurisdiction-supported rating level (JRL) as 'aaa'.

We determine the total collateral-based uplift by analyzing the cover pool's asset credit quality, payment structure, and cash flow mechanics. As of March 31, 2020, the cover pool amounts to Danish krone (DKK) 294.35 billion, made up of residential and commercial mortgages, public housing loans, and substitute assets (commonly called a "reserve fund" in traditional Danish covered bonds).

We generally analyze the cover pool's mortgage credit quality with the help of two key indicators:

- The weighted-average foreclosure frequency (WAFF), which reflects the expected default rate; and
- The weighted-average loss severity (WALS), which describes the expected loss given default.

As of June 30, 2020, the available credit enhancement is 7.47%. This is greater than the 2.50% credit enhancement commensurate with a 'AAA' rating, which corresponds in this instance with the coverage of 'AAA' credit risk.

As part of our analysis, we reviewed Realkredit Danmark's origination, underwriting, collection, and default management procedures. We believe satisfactory policies are in place to support our ratings on the covered bonds. As there are no further legal, counterparty, or country risk constraints on our rating, we have affirmed our 'AAA' rating on the program.

As of Sept. 30, 2020, there were no section 15 covered bonds outstanding from capital center S. However, if there were any section 15 bonds to be issued out of this capital center, our ratings would reflect the RRL of the senior covered bonds. This is because, according to our criteria interpretation, we consider the section 15 bonds to have the same protection as senior covered bonds if there is a bank resolution. This also reflects that section 15 bonds are not subject to a payment deferral if the issuer becomes insolvent.

The purpose of section 15 bonds does not warrant the assignment of any jurisdictional support uplift as typically contemplated for traditional covered bonds under our criteria. Furthermore, we do not consider any collateral-based uplift because we do not believe that the issuers of section 15 bonds will manage their overcollateralization levels in the same way we typically expect for covered bonds (see "Ratings Raised On Danish Section 15 Bonds From Six Capital Centers Following Clarification On Bank Resolution," published on Dec. 11, 2015).

Program Description

Table 1

Program Overview*	
Jurisdiction	Denmark
Year of first issuance	2007
Covered bond type	Legislation-enabled
Outstanding covered bonds (bil. DKK)	277.6
Redemption profile	Mixed
Underlying assets	Residential and commercial mortgages
Jurisdictional support uplift	3
Unused notches for jurisdictional support	0
Target credit enhancement (%)§	3.37
Credit enhancement commensurate with rating (%)	2.50
Available credit enhancement (%)	7.47
Collateral support uplift	3
Unused notches for collateral support	3
Total unused notches	3

*Based on data as of June 30, 2020. §Level of credit enhancement corresponding to 100% of refinancing costs.

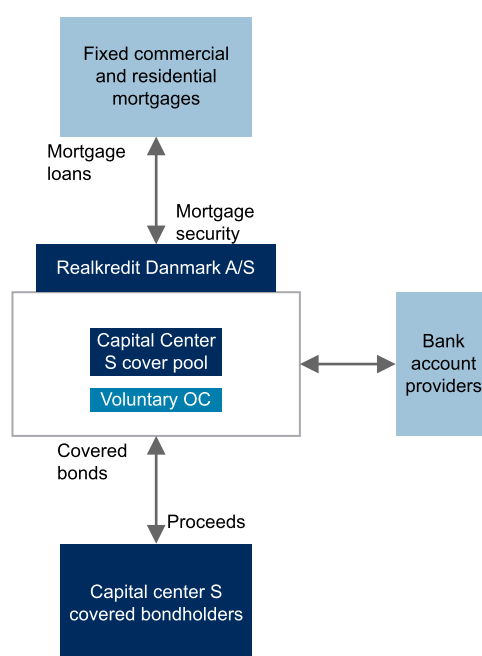
Realkredit Danmark is a wholly owned subsidiary of Danske Bank and is a specialist mortgage bank in Denmark, second in size to Nykredit Realkredit A/S. Realkredit Danmark is an established issuer of Danish mortgage covered bonds, "realkreditobligationer" (ROs), and "særligt dækkede realkreditobligationer" (SDROs).

Capital center S is currently actively issuing SDO covered bonds, which includes mortgage assets--backed by both residential and commercial properties--as well as a reserve fund consisting primarily of Danish covered bonds.

Danske Bank acts as the main bank account provider. To mitigate counterparty risk, the issuer has replacement language in place, which is in line with our current counterparty criteria (see "Counterparty Risk Framework: Methodology And Assumptions," published on March 8, 2019).

The cover pool assets would be ring-fenced if Realkredit Danmark were to become insolvent under the respective Danish legislative framework. SDRO covered bondholders have a primary secured claim against all assets in the cover pool.

Realkredit Danmark A/S Capital Center S Mortgage Covered Bond Program Program Structure



Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Rating Analysis

Legal and regulatory risks

We analyzed legal risk by applying our legal criteria and our criteria for rating covered bonds (see "Structured Finance: Asset Isolation And Special-Purpose Entity Methodology," published on March 29, 2017).

In our view, the Danish covered bond framework sufficiently addresses the relevant legal aspects of our covered bond and legal criteria. This enables us to rate the covered bonds above our long-term ICR on the issuer's parent bank. The Danish Covered Bond Act provides the legal framework for the issuance of the Danish covered bonds.

SDRO covered bond investors have a primary secured claim against all assets in the cover pool. The ratings on the covered bonds issued from capital center S rely on the issuer's active management of the overcollateralization to support the current ratings.

To become eligible as collateral, mortgage loans must be entered in the Danish land register. The registration is legally binding and will form the basis of any bankruptcy proceedings. If bankruptcy proceedings have been initiated, a trustee appointed by the bankruptcy court will administer the cover pool assets. The trustee is ordered by law to meet all payment obligations as they fall due.

The issuer must maintain an overcollateralization of at least 8% of risk-weighted assets. Banking supervision is carried out by the Danish Financial Supervisory Authority (DFSA, or "Finanstilsynet"). The DFSA has the authority to issue an order with which the issuer must comply. In case of severe or multiple breaches, the DFSA may revoke the license.

Operational and administrative risks

In June 2020, we conducted a review of Realkredit Danmark's origination, underwriting, collection, and default management procedures for the capital center's cover pool assets. We also reviewed the cover pool's management and administration. Overall, we consider the bank's systems and procedures, and origination and underwriting policy as prudent. In addition to an annual meeting, we have ongoing regular contact with the issuer.

We analyzed operational and administrative risk by applying our covered bonds criteria.

Resolution regime analysis

Danske Bank is domiciled in Denmark, which is subject to the EU's BRRD. We assess the systemic importance for Danish mortgage programs as very strong. Under our covered bonds criteria, this means the RRL can be two notches above the long-term ICR. This uplift recognizes that resolution regimes such as the BRRD increase the probability that an issuer could service its covered bonds, even following a default on its senior unsecured obligations because the law exempts covered bonds from bail-in risk if there is a bank resolution. We consider this as an internal form of support, because the bail-in of certain creditors of the issuer does not require direct government support.

The RRL is equal to the greater of (i) the issuing bank's ICR, plus up to two notches for programs in jurisdictions with effective resolution regimes that exempt covered bonds from bail-in, and (ii) the RCR on the issuing bank, where applicable. As the assigned RCR for Danske Bank is 'A+', the resulting RRL is 'aa-', two notches of uplift from the ICR.

Jurisdictional support analysis

In analyzing jurisdictional support, we assess the likelihood of a covered bond under stress receiving support from a government-sponsored initiative instead of from the liquidation of collateral assets in the open market. Our assessment of jurisdictional support for mortgage programs in Denmark is very strong (see "Assessments For Jurisdictional Support According To Our Covered Bonds Criteria," published on March 3, 2020). The assessment of very strong means that the program can receive up to three notches of jurisdictional uplift. The JRL is therefore 'aaa'. This is the rating the program can achieve by covering the legal minimum overcollateralization requirement, according to our covered bonds criteria.

Collateral support analysis

We have reviewed the mortgage asset and substitute collateral information as of March 31, 2020. We have analyzed the mortgage loan-by-loan data from the issuer and applied stresses commensurate with a 'AAA' rating scenario to estimate the WAFF and WALs. The cover pool primarily comprises Danish residential and commercial mortgages (87.8%), public housing loans (5.6%), and substitute assets and cash (6.6%). Most of the mortgage assets (98.4%) pay based on a fixed rate.

We base our credit analysis of mortgage assets on our new global RMBS criteria for analyzing residential mortgage collateral in Danish covered bonds and our commercial real estate criteria as well as public sector criteria for public housing loans (see "Related Criteria").

While the WAFF improved and decreased to 14.8% from 15.8%, the WALs remained stable at 31.1% compared to 31.2% at our previous review (the residential mortgages' loan-to-value ratio [LTV] decreased while the commercial mortgages' LTV increased, offsetting each other). The improvement in the portfolio's WAFF is mainly driven by the application of our revised global residential loans criteria, under which we apply multiples based on an LTV ratio that weights 80% of the loan's original LTV and 20% of the current LTV.

Compared to previous review, the share of commercial mortgages slightly increased, which offsets a further decrease in the overall WAFF (the WAFF of the commercial mortgages is higher compared to the WAFF of residential mortgages).

Our credit analysis of the substitute pool (also referred to as the "reserve fund") includes an asset-by-asset review of underlying securities to estimate the credit risk of each individual exposure. To determine the default and loss on the reserve fund, we apply our "Methodology And Assumptions For Assessing Portfolios Of International Public Sector And Other Debt Obligations Backing Covered Bonds And Structured Finance Securities," published on Dec. 9, 2014.

We consider the pool of substitute assets to exhibit low granularity as the 10 largest exposures account for over 99% of total substitute assets. For low granularity pools, in a 'AAA' stress scenario, we assume that assets with a credit rating of 'AAA' will not default, except for covered bonds that are issued by other Realkredit Danmark capital centers (we assume these default as our analysis presumes the issuer has already defaulted). For the assets that default, we determine the recovery rate as described in aforementioned criteria. As all of the bonds that we assume to default are structurally match-funded covered bonds, we are able to apply higher recoveries. The analysis results in an assumed default rate of the reserve fund of 11.0%, which is slightly lower compared to previous review of 13.9%.

When analyzing public housing loans we have also used our public sector criteria (see "S&P Global Ratings Clarifies Its Approach To Analyzing Danish Subsidized Housing," published on Jan. 15, 2019).

For our credit analysis, we have used the pool-cut as of first-quarter 2020.

Table 2

Program Participants			
Role	Name	Rating	Rating dependency
Issuer	Realkredit Danmark A/S	A/Stable/A-1*	Yes
Originator	Realkredit Danmark A/S	A/Stable/A-1*	No

Table 2

Program Participants (cont.)			
Role	Name	Rating	Rating dependency
Servicer	Danske Bank A/S	A/Stable/A-1	No
Arranger	Danske Bank A/S	A/Stable/A-1	No
Bank account provider	Danske Bank A/S	A/Stable/A-1	Yes
Bank account provider	Jyske Bank A/S	A/Stable/A-1	Yes
Bank account provider	Nordea Bank Abp	AA-/Negative/A-1+	Yes

*In our analysis, we uplift the rating from the issuer credit rating on the parent Danske Bank A/S.

Table 3

Asset type	As of March 31, 2020		As of March 31, 2019	
	Value (DKK)	Percentage of cover pool (%)	Value (DKK)	Percentage of cover pool (%)
Residential mortgages	187,421,456,608	63.67	174,392,682,297	63.62
Public housing	16,522,631,644	5.61	20,200,178,247	7.37
Commercial mortgages	71,105,567,135	24.16	61,786,195,240	22.54
Substitute assets	19,302,307,532	6.56	17,741,424,158	6.47
Total	294,351,962,919	100.00	274,120,479,942	100.00

Table 4

	As of March 31, 2020	As of March 31, 2019
	Weighted-average original LTV (%)	67.5
Weighted-average effective LTV (%)*	65.6	N/A
Weighted-average LTV ratio (%)	57.5	59.1
Balance of loans in arrears (%)	0.0	0.1
Credit analysis results		
Weighted-average foreclosure frequency (%)	14.8	15.8
Weighted-average loss severity (%)	31.1	31.2

*Effective LTV is calculated weighting 80% of the original LTV and 20% of the current LTV LTV--Loan to value.

Table 5

	As of March 31, 2020	As of March 31, 2019
	Percentage of cover pool (%)	
Residential assets (%)		
0-60	49.35	37.68
60-70	18.17	18.3
70-80	23.38	28.08
80-90	8.92	15.64
90-100	0.05	0.1
Above 100	0.13	0.2

Table 5

Loan-To-Value Ratios (cont.)		
	As of March 31, 2020	As of March 31, 2019
Commercial assets (%)		
0-60	70.99	73.59
60-70	12.79	15.62
70-80	7.5	6.71
80-90	2.85	1.97
90-100	2.44	0.67
Above 100	3.43	1.44
Weighted-average LTV ratio	57.45	59.06

LTV--Loan to value.

Table 6

Seasoning		
	As of March 31, 2020	As of March 31, 2019
Residential assets (%)	Percentage of sub cover pool (%)	
0-24	62.43	39.1
24-48	18.03	30.6
48-60	4.35	20
60-72	8.70	2.4
72-84	1.40	4.1
84-96	2.35	1.9
96-108	1.41	1.1
108-120	0.71	0.3
More than 120	0.62	0.5
Weighted-average loan seasoning (months)	25.32	34

Table 7

Geographic Distribution Of Loan Assets		
	As of March 31, 2020	As of March 31, 2019
	Percentage of cover pool	
Residential assets		
Capital Region of Denmark	47.41	46.60
Central Denmark Region	15.42	15.60
Region Zealand	15.84	15.70
North Denmark Region	4.87	5.20
Region of Southern Denmark	16.46	16.90
Total	100.00	100.00
Commercial assets		
Central Denmark Region	44.48	41.36
North Denmark Region	21.52	20.62
Region Zealand	10.67	10.05

Table 7

Geographic Distribution Of Loan Assets (cont.)		
	As of March 31, 2020	As of March 31, 2019
Region of Southern Denmark	6.53	8.84
Capital Region of Denmark	16.80	19.13
Other in Denmark	0.00	0.00
Total	100.00	100.00

Our analysis of the covered bonds' payment structure shows that cash flows from the cover pool assets would be sufficient, at the existing rating level, to make timely payments of interest and principal to the covered bondholders.

As there is an active secondary market for mortgages in Denmark, the program can benefit from up to four notches of collateral-based uplift according to our covered bonds criteria. Before determining the number of collateral-based notches needed to reach a 'AAA' rating, we consider the following adjustments:

- A one-notch reduction applies if the program does not benefit from at least six months of liquidity. Due to the match-funded nature of Realkredit Danmark's capital center S, we consider that liquidity coverage is met. Each covered bond is matched to a specific mortgage loan, and any payments from the loan will be used to make payments on the bond.
- A further one-notch reduction applies if the program does not benefit from any form of commitment on overcollateralization. As Realkredit Danmark's capital center S only has voluntary overcollateralization without any commitment, this results in a one-notch reduction to the potential collateral-based uplift.

Given the JRL of 'aaa', the program only needs to cover 'AAA' credit risk to reach a 'AAA' rating. In addition, under our CRE criteria, we apply an out-of-model supplemental test to address borrower concentration risk (the largest obligor test). In this instance, the 'AAA' credit risk is not floored by the largest obligor test of 1.64%.

The lower WAFF of the mortgage pool, our updated sector estimate of public housing loans, and the lower servicing fees for residential mortgages based on our new guidance have a positive effect on both the target credit enhancement and 'AAA' credit risk, which decreased to 3.37% from 6.66% and to 2.50% from 5.55%, respectively.

We analyzed the cash flows under 'AAA' credit stresses, as well as liquidity, interest rate, and currency stresses to reflect the fact that the pool does not have recourse to derivatives but relies on "natural hedging." The terms of the issued bonds match those of the underlying mortgages due to the balancing principle. We also ran different default timing and prepayment patterns.

We have used the most recent asset and liability profile (as of June 2020) for our cash flow analysis.

Table 9

Collateral Uplift Metrics		
	As of June 30, 2020	As of June 30, 2019
Asset WAM (years)	13.27	13.03
Liability WAM (years)	14.07	13.83
Available credit enhancement (%)	7.47	7.27
AAA' credit risk (%)	2.50	5.55

Table 9

Collateral Uplift Metrics (cont.)		
	As of June 30, 2020	As of June 30, 2019
Required credit enhancement for first notch of collateral uplift (%)	2.50	5.83
Required credit enhancement for second notch of collateral uplift (%)	2.67	6.11
Required credit enhancement for third notch of collateral uplift (%)	3.02	6.38
Target credit enhancement for maximum uplift (%)	3.37	6.66
Potential collateral-based uplift (notches)	4	4
Adjustment for liquidity (Y/N)	N	N
Adjustment for committed overcollateralization (Y/N)	Y	Y
Collateral support uplift (notches)	3	3

WAM--Weighted-average maturity

Counterparty risk

We have identified several counterparty risks to which the covered bonds could be exposed. However, these are mitigated through either structural mechanisms, or by applying the Danish Covered Bond Act. Therefore, we consider them not to constrain our ratings on the covered bonds.

Commingling risk. The collection accounts are not held in capital center S' name, but under Realkredit Danmark's name. This introduces potential commingling risk. The funds in the accounts are commingled with the funds collected for the other Realkredit Danmark capital centers, as well as with Realkredit Danmark's funds. However, under the Danish covered bond legislation, covered bondholders have the right to these funds. Therefore, we do not consider cash to be lost, but that it could be temporarily unavailable. Therefore, commingling risk amounts not to a credit loss but to a liquidity stress.

Due to the balance principle in Danish covered bond law, mortgage banks in practice do not hold large cash balances but reinvest payments received before the bond due date for securities whose maturity matches the remaining maturity and interest of such bonds. Given the replacement language in place for bank accounts (see below) and the limited time--less than a working day--that funds stay in bank accounts, we do not apply a liquidity stress in our cash flow calculations.

Bank account providers. Several banks provide accounts for the program. Incoming cash is invested in a defined group of high-quality assets intraday. As a result, the cash balance on any collection accounts is managed to be as close to zero as practically possible. To mitigate counterparty risk, the issuer has replacement language in place, which is in line with our current counterparty criteria. The issuer commits to keep its cash holdings to a level below 5% of outstanding balance and to hold the monies in institutions rated 'BBB/A-2' or above. If the ICR on the bank account provider falls below 'BBB/A-2', Realkredit Danmark will make commercially reasonable efforts to replace the account holding bank with a bank that meets our criteria within 30 calendar days. Should the holdings exceed the 5% threshold, the issuer would only deposit them in institutions rated 'A' or above, which is in line with our current counterparty criteria.

Derivatives. There are no swap counterparties in the program.

Sovereign risk

We analyze sovereign risk by applying our criteria "Incorporating Sovereign Risk In Rating Structured Finance Securities: Methodology And Assumptions," published on Jan. 30, 2019. Given our unsolicited long-term 'AAA'

sovereign credit rating on Denmark, this risk does not constrain our rating on Realkredit Danmark Capital Center S' mortgage covered bonds.

Potential Effects Of COVID-19

S&P Global Ratings acknowledges a high degree of uncertainty about the evolution of the coronavirus pandemic. The current consensus among health experts is that COVID-19 will remain a threat until a vaccine or effective treatment becomes widely available, which could be around mid-2021. We are using this assumption in assessing the economic and credit implications associated with the pandemic (see our research here: www.spglobal.com/ratings). As the situation evolves, we will update our assumptions and estimates accordingly.

Related Criteria

- Counterparty Risk Framework: Methodology And Assumptions, March 8, 2019
- Incorporating Sovereign Risk In Rating Structured Finance Securities: Methodology And Assumptions, Jan. 30, 2019
- Global Methodology And Assumptions: Assessing Pools Of Residential Loans, Jan. 25, 2019
- Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Structured Finance: Asset Isolation And Special-Purpose Entity Methodology, March 29, 2017
- Criteria - Structured Finance - Covered Bonds: Covered Bond Ratings Framework: Methodology And Assumptions, June 30, 2015
- Criteria - Structured Finance - Covered Bonds: Methodology And Assumptions: Analyzing European Commercial Real Estate Collateral In European Covered Bonds, March 31, 2015
- Covered Bonds Criteria, Dec. 9, 2014
- Methodology And Assumptions For Assessing Portfolios Of International Public Sector And Other Debt Obligations Backing Covered Bonds And Structured Finance Securities, Dec. 9, 2014
- Group Rating Methodology, July 1, 2019
- Methodology: Credit Stability Criteria, May 3, 2010
- Use Of CreditWatch And Outlooks, Sept. 14, 2009

Related Research

- Danish Covered Bond Market Insights 2020, Oct. 21, 2020
- Global Covered Bond Insights Q3 2020, Sept. 17, 2020
- Global Covered Bond Characteristics And Rating Summary Q3 2020, Sept. 17, 2020
- Denmark Ratings Affirmed At 'AAA/A-1+'; Outlook Stable, Aug. 28, 2020
- Assessments For Target Asset Spreads According To Our Covered Bonds Criteria, March 3, 2020

Transaction Update: Realkredit Danmark A/S (Capital Center S Mortgage Covered Bond Program)

- Assessments For Jurisdictional Support According To Our Covered Bonds Criteria, March 3, 2020
- Danske Bank Outlook Revised To Stable On Increasing Loss Absorption Capacity; 'A/A-1' Ratings Affirmed, Oct. 23, 2019
- S&P Global Ratings Clarifies Its Approach To Analyzing Danish Subsidized Housing, Jan. 15, 2019
- S&P Global Ratings Definitions, Oct. 31, 2018
- Ratings Raised On Danish Section 15 Bonds From Six Capital Centers Following Clarification On Bank Resolution, Dec. 11, 2015
- Credit FAQ: The Danish Covered Bond Market Explained, July 15, 2014

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.