

Covered Bonds follow-up Rating

Crédit Agricole Home Loan SFH
Mortgage Covered Bond Program

Rating Object	Rating Information	
Crédit Agricole Home Loan SFH, Mortgage Covered Bond Program	Rating / Outlook : AAA / Stable	Type: Rating Update (unsolicited)
Type of Issuance : Mortgage Covered Bond under French law Issuer : Crédit Agricole Home Loan SFH	Rating Date : 03.12.2019 Rating Renewal : Withdrawal of the rating	
LT Issuer Rating : A (Crédit Agricole SA) ST Issuer Rating : L2 Outlook Issuer : Stable	Rating Methodology : CRA „Covered Bond Ratings“	

Program Overview			
Nominal value	EUR 31.200 m.	WAL maturity covered bonds	6,65 Years
Cover pool value	EUR 47.397 m.	WAL maturity cover pool	7,58 Years
Cover pool asset class	Mortgages	Overcollateralization (nominal/committed)	51,91%/ 8,11%
Repayment method	Soft Bullet	Min. overcollateralization	5,00%
Legal framework	SFH Legislation	Covered bonds coupon type	Fix (100,00%), Floating (0,00%)

Cut-off date Cover Pool information: 30.09.2019.

Rating Action

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This follow-up report covers our analysis of the mortgage covered bond program issued under French law by Crédit Agricole Home Loan SFH („Crédit Agricole“). The total covered bond issuance at the cut-off date (30.09.2019) had a nominal value of EUR 31.199,69 m, backed by a cover pool with a current value of EUR 47.396,67 m. This corresponds to a nominal overcollateralization of 51,91%. The cover assets mainly include French mortgage obligations in France.

Taking into consideration the issuer rating, our analysis of the regulatory framework, liquidity- and refinancing risks, as well as our cover pool assessment and results of the cash flow analysis, Creditreform Rating AG (“Creditreform Rating” or “CRA”) affirms the covered bond program with an AAA rating. The AAA rating represents the highest level of credit quality and the lowest investment risk.

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Key Rating Findings

- + Covered Bonds are subject to strict French legal framework (SFH Legislation), and full recourse of the covered bonds to the issuer.
- + Current high overcollateralization (OC) of 51,91% as of 30.09.2019
- Geographical concentration of the cover assets

Table1: Overview results

Risk Factor	Result
Issuer rating	A (rating as of 22.11.2019)
+ Legal and regulatory framework	+4 Notches
+ Liquidity and refinancing risk	+1 Notch
= Rating after 1 st uplift	AAA

Cover pool & cash flow analysis	AAA
+ 2 nd rating uplift	+3 Notches
= Rating covered bond program	AAA

Issuer Risk

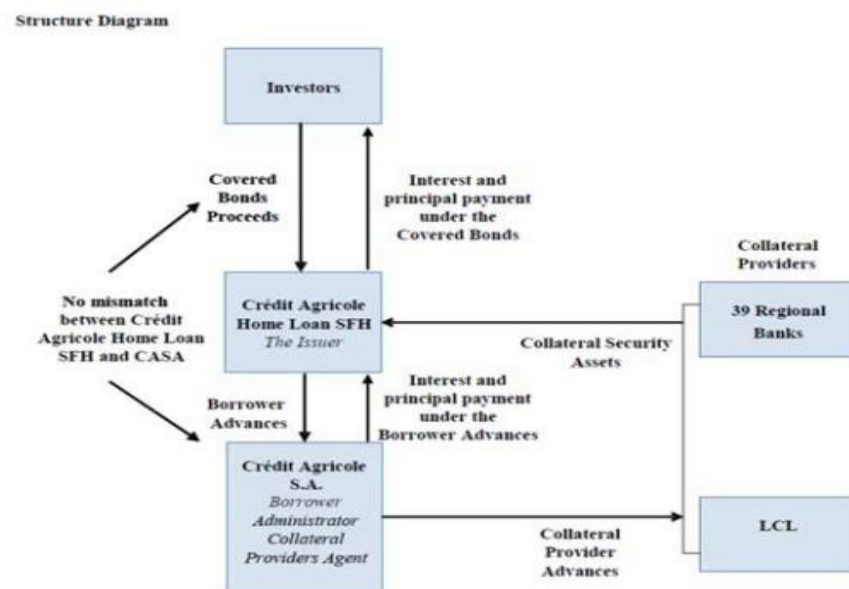
Issuer

Our rating of Crédit Agricole Home Loan SFH covered bond program is reflected by our issuer rating opinion of its parent company Crédit Agricole SA (Group) due to its group structure. CRA has affirmed the Long-term Issuer Rating of Crédit Agricole SA (Group) at 'A' in a Rating Update dated 22 November 2019. Responsible for this affirmation was the stable profitability and good asset quality with low NPL figures. In addition, the bank profited from robust growth in both lending and customer deposits and maintains an adequate, above average capitalization. For a more detailed overview of the issuer rating, please refer to the report published on the webpage of Creditreform rating AG.

Structural Risk

Transaction structure

Figure1: Overview of Covered Bond emission | Source: Crédit Agricole



Legal and Regulatory Framework

In France, there exist three different types of covered bonds - 'Obligations Foncières' (OF), 'Caisse de Refinancement de l'habitat' (CRH) and 'Obligations de Financement de l'habitat' (OH) - governed by different legal frameworks.

An affiliated company – the 'Sociétés de Financement de l'Habitat (SFH), which is a regulated French specialized credit institution with the restricted purpose to provide and fund home loans, issues OHs. As the issuer is not the originator, the cover assets are owned by and segregated in the sponsor bank but pledged and transferred to the SFH. The SFHs have to obey the laws and regulations codified by Articles L.515-35 of the French Monetary and Financial Code.

Under the SFH legislation, the OH holders has direct recourse to the issuer and legal privilege over the SFH's eligible cover assets, which are first-rank residential home mortgages or other real estate security interests similar to first-rank mortgages confined mainly to EU/EEA countries. Furthermore, other countries are allowed as far as they achieve the highest possible credit rating by an approved external rating agency.

Along with the nomination of two external statutory auditors, the legal framework stipulates to nominate an independent Specific Controller to monitor the cover pool.

In case of issuer's insolvency, the general insolvency court will manage the cover pool and will act in the interest of the covered bondholders. The SFH issuers have to disclose information regarding cover assets and covered bond programs on their website on a regular basis as well.

In general, we consider the structural framework for covered bond programs in France as positive, as SFH legislation defines clear rules to mitigate risks in particular regarding insolvency remoteness, asset segregation, investor's special claim vis-à-vis other creditors, the roll and appointment of a special administrator, among other provisions. Due to those reasons we have set a rating uplift of four (+4) notches for the regulatory and structural framework for French covered bond programs under SFH legislation.

Liquidity- and Refinancing Risk

With respect to OHs, it is compulsory for the covered bond issuers to maintain a nominal overcollateralization (OC) of 5% at all times, while the coverage calculations have to be done on a monthly basis. Furthermore, the Issuer is also required to maintain a liquidity buffer to cover, for the next 180 days, all debt service outflows (interest and principal) and derivative transactions.

The underlying cover pool is also subjected to an asset-coverage test in order to ensure sufficient OC level and cash flow adequacy. SFH must manage and hedge interest rate risks, currency risks, and liquidity and maturity mismatches between assets and liabilities.

In the event of the issuer's insolvency, the special administrator (i.e. general insolvency court) can sell assets of the cover pool or use them as a guarantee for liquidity operations if liquidity shortfalls are foreseeable.

The European Commission on April 2019 has also adopted the directive to provide for enhanced harmonisation of the EU covered bond market. Once fully implemented, the directive might have a potential impact on legal and regulatory framework on the issuer and the covered bonds of each EU member states.

In general, the SFH legislation and the stipulated risk management processes for liquidity risks constitute a comparatively strict framework by which they can be effectively reduced. Refinancing risks, however, may not be structurally reduced under the hard bullet repayment structure, which can only be cushioned by sufficiently high overcollateralization or by other liquid funds.

It is worth mentioning that, several SFH programs count with more flexible repayment structures (e.g. soft-bullet structures). Overall, we assess the legal provisions on liquidity management for French Covered Bond programs under SFH legislation as positive and set a rating uplift of one (+1) notch.

For a more comprehensive overview of the regulatory framework (SFH legislation) of French covered bond programs, please refer to our initial rating reports dated 23.01.2019 published on our website.

Credit and Portfolio Risk

Cover pool analysis

The analysis of the cover pool is based on public information which has been made available by the Issuer, in particular the Harmonised Transparency Template („HTT“) as per regulatory requirements. This information was sufficient according to CRA´s rating methodology “Covered Bond Ratings”.

At the cut-off-date 30.09.2019, the pool of cover assets consisted of 728.440 debt receivables, of which 100,00% are domiciled in France. The total cover pool volume amounted to EUR 47.396,67 m in residential (100,00%), commercial (0,00%) and others (0,00%) loans.

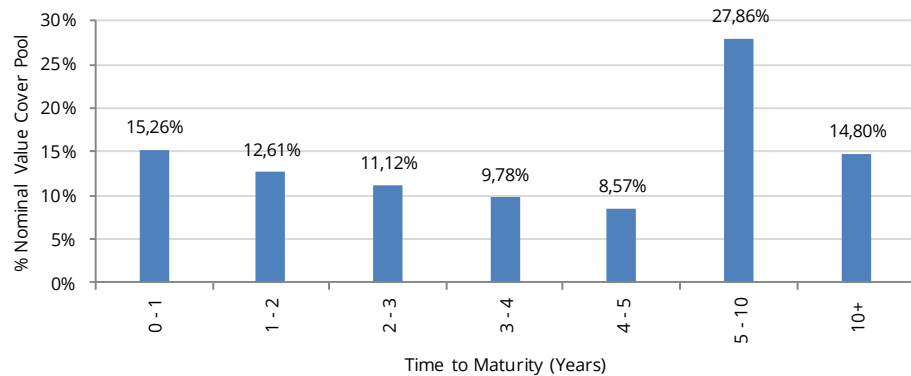
The residential cover pool consists of 728.440 mortgage loans having an UNINDEX weighted average LTV of 62,24%. The ten largest debtors of the portfolio total to 0,02%. Table 2 displays additional characteristics of the cover pool:

Table 2: Cover pool characteristics | Source: Crédit Agricole

Characteristics	Value
Cover assets	EUR 47.397 m.
Covered bonds outstanding	EUR 31.200 m.
Substitute assets	EUR 551,84 m.
Cover pool composition	
<i>Mortgages</i>	98,84%
<i>Substitute assets</i>	1,16%
<i>Other / Derivative</i>	0,00%
Number of debtors	NA
Mortgages Composition	
<i>Residential</i>	100,00%
<i>Commercial</i>	0,00%
<i>Other</i>	0,00%
Average asset value (Residential)	EUR 64,31 k.
Average asset value (Commercial)	NA
Non-performing loans	0,0%
10 biggest debtors	0,02%
WA seasoning	86,2 Months
WA maturity cover pool (WAL)	5,28 Years
WA maturity covered bonds (WAL)	7,58 Years

We have listed an extended view of the composition of the cover pool in the appendix section “Cover pool details”. The following chart displays the maturity profile of the cover assets at the cut-off date 30.09.2019 (see figure 2):

Figure 2: Distribution by remaining time to maturity | Source: Crédit Agricole



Maturity profile

The following charts present the cash flow profile of the Issuer (see figure 3 and figure 4):

Figure 3: Cover asset congruence | Source: Crédit Agricole

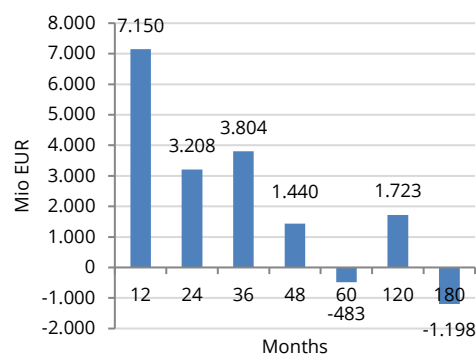
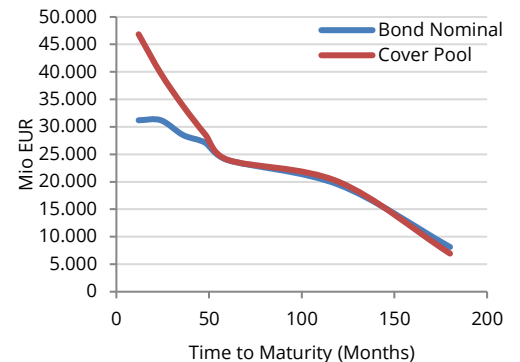


Figure 4: Amortization profile | Source: Crédit Agricole



During its cash flow modelling, CRA has taken into consideration the extended maturity structure of cover assets and liabilities. This structure was an integral part of the cash flow analysis.

Interest rate and currency risk

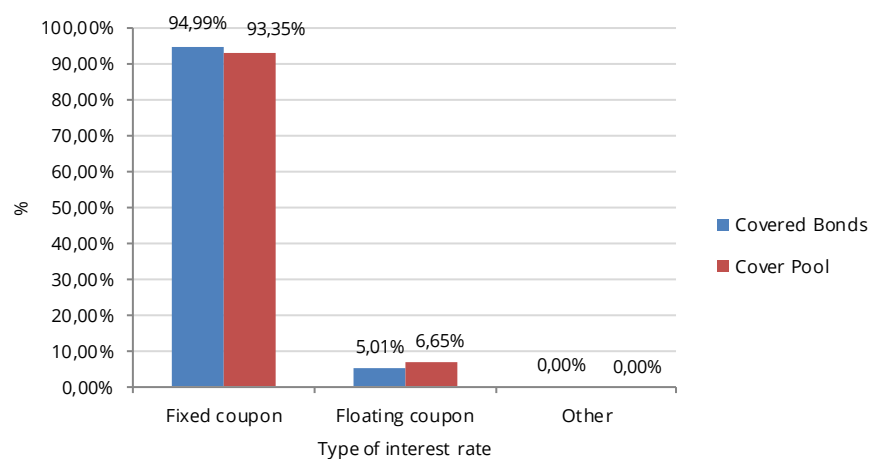
The covered bond program uses derivatives to hedge currency risks. The legal framework also provides for quarterly stress tests to be conducted on interest rate- and currency risks to maintain the mandatory OC. Therefore, interest rate risk could be mitigated by the 5% OC requirement. Nevertheless, we have applied interest rate stresses on the cash flows for each rating level according to our methodology.

Table 3: Program distribution by currency | Source: Crédit Agricole

Currency	Volume	Share (%)
<i>Cover Pool</i>		
EUR	47.397 m	100,00%
<i>Covered Bond</i>		
EUR	29.636 m	94,99%
CHF	1.564 m	5,01%

Figure 5 shows the types of interest rate used in this program

Figure 5: Type of interest rate | Source: Crédit Agricole



Credit Risk

The credit risk assessment for Mortgage Covered Bond have been determined in accordance with CRA rating methodology for Covered Bonds by means of historical data and particular parameters from the Covered Bonds.

Due to the high granularity of mortgage pools we have characterized these portfolios as big enough and with a homogeneous composition i.e. ("Large Homogeneous Portfolio", LHP). Furthermore, under that premise we have assumed that it is possible to derive a loss distribution. CRA has used the issuer's historical NPL ratios to derivate a conservative default rate proxy for the approximation through the LHP distribution. For the Crédit Agricole it has been assumed an expected default rate of 0,667% for the LHP. Furthermore, CRA has considered a 15,00% correlation to define the LHP distribution. Table 4 discloses the expected default rates for each relevant rating level.

In order to derive recovery and loss-severity base case assumptions, CRA has used historical data from mortgage price indexes. To determine loan-level recovery assumptions the resulting stressed recovery assumptions were compared with the portfolio's existing loan-to-value ratios (LTVs).

Based on the default rates and taking into account the recovery assumptions, the following loss assumptions were determined for the current cover pool (see Table 4)

Table 4: Cover Pool Base case assumptions | Source: CRA

Rating	Default Rate (%)	Recoveries (%)	Expected Loss (%)
AAA	32,90%	50,29%	16,35%
AA+	30,72%	52,60%	14,56%
AA	26,14%	58,49%	10,85%
AA-	22,95%	63,31%	8,42%
A+	21,55%	65,10%	7,52%
A	21,54%	65,11%	7,51%
A-	20,81%	66,06%	7,06%

Cash-Flow Analysis

Model Assumptions

Based on public information and using the base case loss assumptions, we implement a scenario-based cash flow model. This model aims to test the ability of the structure to service all covered bonds according to their payment profile in diverse stress scenarios. The CRA cash flow analysis assumes that the Issuer has defaulted, i.e. all obligations will be met using cash flows from the cover pool assets only. We also assume that no additional assets will be added to the cover pool during the wind-down phase.

The cash-flow analysis considers, among other factors, asset value haircuts (“asset-sale discount”), and the possible positive yield spread between covered assets and covered bonds (“yield spreads”). To derive the asset-sale discount, CRA assumes, based on secondary market data, a rating level haircut on the asset value. Furthermore, CRA, using available public information (i.e. issuer’s annual accounts), has derived estimations for yield spreads. However, historical net interest margins of Crédit Agricole resulted in negative yields for some rating levels due to high variances. Therefore, the negative yield spreads have been floored to zero in our cash flow analysis (see table 5):

Table 5: Cash-Flow Model assumptions | Source: CRA

Rating level	Asset-Sale Discount	Yield Spread
AAA	66,67%	0,00%
AA+	61,27%	0,02%
AA	57,79%	0,09%
AA-	54,47%	0,16%
A+	51,92%	0,21%
A	49,83%	0,25%
A-	47,10%	0,30%

Rating Scenarios

In our cash flow model rating scenarios have been tested considering several central input parameters, such as:

- Portfolio composition (diversification, concentration, granularity)
- Probability of default of cover assets
- Correlations of cover assets and systematic risk factors
- Recoveries

- Maturity profile of covered bonds and cover assets (ALM)

Within an AAA rating scenario, the cash flow model showed that obligations can be paid fully and in a timely manner. Overall, the cash flow analysis revealed that the portfolio, given all used information as of 30.09.2019, may ensure the repayment of bonds' nominal capital notwithstanding the occurrence of the presented stressed scenarios.

Overcollateralization Break-Even Analysis

CRA also performed a break-even OC analysis taking into considerations the following drivers: ALM, Loss level, Interest rate spreads, foreign currency mismatches and Recoveries. Performing the break-even OC analysis, we took rating-level specific stressed outcomes into account. Based on these analyses, the maximum OC required for each relevant rating level during the whole period has been presented in table 6.

Table 6: Break-even Analysis | Source: CRA

Rating Level	Break-Even OC
AAA	25,53%
AA+	22,75%
AA	17,21%
AA-	13,69%
A+	12,25%
A	11,97%
A-	11,07%

Sensitivity Analysis

CRA also evaluates the sensitivity of the structure and program with respect to important input parameters. In particular, the following factors have been varied:

- Credit quality of cover assets
- Recoveries

The following table presents the rating impact of a decline in recoveries and an increase in the credit risk of single debtors. Starting from the best-case, which is represented by our base case assumptions, the analysis reveals the sensitivity of the rating with respect to recovery rates and credit risk. The worst-case scenario, in which we reduce recoveries by 50% and increase credit risk by 50%, the impact leads to a reduction in the base-case rating by 2 notches (see Table 7):

Table 7: Covered Bond Program Sensitivity: Credit Quality und Recovery Rates | Source: CRA

Recovery / Defaults	Base Case	-25%	-50%
Base Case	AAA	AAA	AAA
+25%	AAA	AAA	AA+
+50%	AAA	AA+	AA

In general, based on the presented cash flow analysis results, the rating of the cover pool within our covered bond program rating has been set at AAA. This ensures a possible uplift of three (+3) notches, however, the secondary rating uplift has been set at zero (0) notch as the maximum attainable rating for this program has already been achieved.

Counterparty Risk

Derivatives

This covered bond program uses intra-group cross-currency swaps to hedge open foreign currency positions.

Commingling

In the event of issuer's bankruptcy, in order to avoid commingling of funds, the SFH legislation stipulates that the cover assets should be isolated from the general bankruptcy estate (insolvency-free assets) and a special cover pool administrator will be appointed to manage the cover pool. Under that mandate the cover pool administrator will have first priority on the up-coming cash flows from the cover pool assets, which in turn should be used to cover interest and principal payments of the covered bond holders in event of the Issuer's insolvency.

Appendix

Rating History

Event	Rating Date	Publication Date	Result
Initial Rating	23.01.2019	30.01.2019	AAA / Stable
Rating Update	03.12.2019	06.12.2019	AAA / Stable

Details Cover Pool

Table 8: Characteristics of Cover Pool | Source: Crédit Agricole

Characteristics	Value
Cover Pool Volume	EUR 47.397 m
Covered Bonds Outstanding	EUR 31.200 m
Substitute Assets	EUR 552 m
Share Derivatives	0,00%
Share Other	100,00%
Substitute Assets breakdown by asset type	
Cash	0,00%
Guaranteed by Supranational/Sovereign agency	0,00%
Central bank	0,00%
Credit institutions	100,00%
Other	0,00%
Substitute Assets breakdown by country	
Issuer country	100,00%
Eurozone	0,00%
Rest European Union	0,00%
European Economic Area	0,00%
Switzerland	0,00%
Australia	0,00%
Brazil	0,00%
Canada	0,00%
Japan	0,00%
Korea	0,00%
New Zealand	0,00%
Singapore	0,00%
US	0,00%
Other	0,00%
Cover Pool Composition	
Mortgages	98,84%
Total Substitute Assets	1,16%
Other / Derivatives	0,00%
Number of Debtors	NA

Distribution by property use	
Residential	100,00%
Commercial	0,00%
Other	0,00%
Distribution by Residential type	
Occupied (main home)	81,14%
Second home	3,24%
Non-owner occupied	15,62%
Agricultural	0,00%
Multi family	0,00%
Other	0,00%
Distribution by Commercial type	
Retail	NA
Office	NA
Hotel	NA
Shopping center	NA
Industry	NA
Land	NA
Other	NA
Average asset value (Residential)	EUR 64 k.
Average asset value (Commercial)	NA
Share of Non-Performing Loans	0,00%
Share of 10 biggest debtors	0,02%
WA Maturity (months)	164,52
WAL (months)	63,33
Distribution by Country (%)	
France	100,00
Distribution by Region (%)	
Auvergne-Rhône-Alpes	15,08
Bourgogne-Franche-Comté	3,91
Bretagne	4,72
Centre-Val de Loire	3,97
Corse	0,61
DOM-TOM	1,48
Grand Est	5,39
Hauts-de-France	8,48
Île-de-France	19,61
Normandie	4,19
Nouvelle-Aquitaine	8,85
Occitanie	9,27
Pays de la Loire	5,85
Provence-Alpes-Côte d'Azur	8,58

Table 9: Participant counterparties | Source: Crédit Agricole

Role	Name	Legal Entity Identifier
Issuer	Crédit Agricole Home Loan SFH	969500C9913Z7PKUGB44
Servicer	Crédit Agricole Regional Banks and LCL	Not available at the present time
Account Bank	Non available information at rating time	Non available information at rating time
Sponsor	Crédit Agricole SA	969500TJ5KRTCJQWXH05

Table 10: Interest rate and Swap counterparties | Source: Crédit Agricole

Name	Legal Entity Identifier	Agreement Type
Crédit Agricole SA	969500TJ5KRTCJQWXH05	Cross Currency

Figure 6: Program currency mismatches | Source: Crédit Agricole

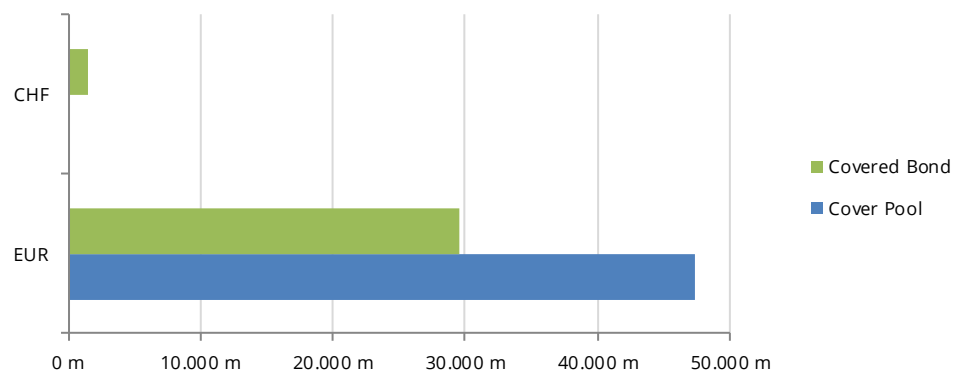
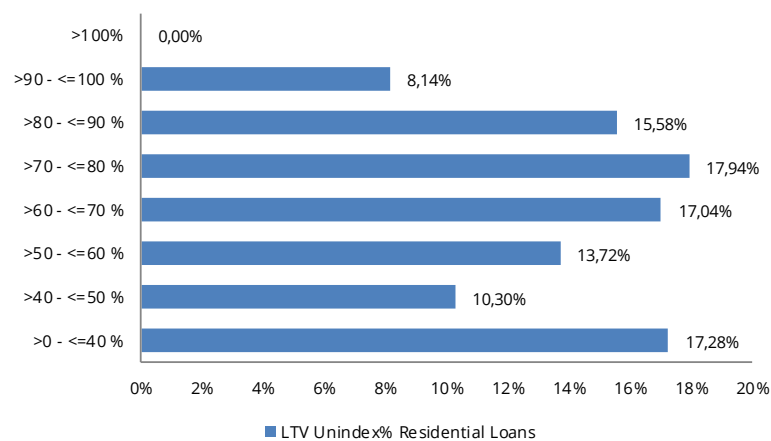


Figure 7: Unindexed LTV breakdown - residential pool | Source: Crédit Agricole



Key Source of Information

Documents (Date: 30.09.2019)

Issuer

- Audited consolidated annual reports of Crédit Agricole SA (Group) 2015-2018
- Final Rating Update dated 22.11.2019 based on the rating report dated 01.02.2018
- Rating File 2019
- Miscellaneous Investor Relations Information and Press releases
- Peergroup-Data and other data from eValueRate/CRA databank

Covered Bond and Cover Pool

- HTT Reporting from Crédit Agricole as of 30.09.2019
- Base prospectus of Crédit Agricole Home Loan SFH Covered Bond Program dated 13.02.2019
- Market data Mortgage Covered Bond Program

Regulatory and Legal Disclosures

Creditreform Rating AG was neither commissioned by the rating object nor by any other third parties for the rating. The analysis took place on a voluntary basis by Creditreform Rating AG and is to be described in the regulatory sense as an unsolicited rating. The rating was conducted on the basis of Creditreform Rating's "Covered Bond Ratings" methodology and "Technical Documentation Portfolio Loss Distributions" in conjunction with Creditreform's basic document "Rating Criteria and Definitions".

The rating is based on publicly available information and internal evaluation methods for the rated bank and program. The issuer's quantitative analysis is based mainly on the latest annual accounts, interim reports, other information of the bank pertaining to investor relations, and key figures calculated by eValueRate/CRA subject to a peer group analysis of 24 competing institutes. The cover pool's quantitative analysis for the rated Covered Bond Program was based on the "Harmonised Transparency Template" (HTT) published by the Crédit Agricole

A complete description of Creditreform Rating's rating methodologies and Creditreform's basic document "Rating Criteria and Definitions" is published on the following internet page:

www.creditreform-rating.de/en/regulatory-requirements/

This rating was carried out by analysts AFM Kamruzzaman and Qinghang Lin both based in Neuss/Germany. On 03.12.2019, the rating was presented to the rating committee by the analysts and adopted in a resolution.

The rating result was communicated to Crédit Agricole, and the preliminary rating report was made available. The Issuer and all relevant parties examined the rating report prior to publication and were given at least one full working day to appeal the rating committee decision and provide additional information. The rating decision was not amended following this examination.

The rating is subject to one-year monitoring from the creation date (see cover sheet). Within this period, the rating can be updated. After one year at the latest, a follow-up is required to maintain the validity of the rating.

In 2011 Creditreform Rating AG was registered within the European Union according to EU Regulation 1060/2009 (CRA-Regulation). Based on the registration Creditreform Rating AG (CRA) is

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Conflict of Interests

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To prepare this credit rating, CRA has used following substantially material sources:

1. Transaction structure and participants
2. Transaction documents
3. Issuing documents

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Between the disclosure of the credit rating to the rated entity and the public disclosure no amendments were made to the credit rating.

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