Creditreform Covered Bond Rating

Crédit Agricole Home Loan SFH, Mortgage Covered Bond Program

Creditreform Rating
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Rating Object	Rating Information
Crédit Agricole Home Loan SFH, Mortgage Covered Bond Program Type of Issuance : Mortgage Covered Bond under French law Issuer : Crédit Agricole Home Loan SFH LT Issuer Rating: A (Crédit Agricole) ST Issuer Rating: L2 Outlook Issuer: Stable	Rating / Outlook : **AAA / Stable** Type: Initial Rating (unsolicited) Rating Date : 23.01.2019 Rating Renewal : Withdrawal of the rating Rating Methodology : CRA „Covered Bond Ratings"

Program Overview			
Nominal value	EUR 28.145 m.	WAL maturity covered bonds	7,10 (Years)
Cover pool value	EUR 41.710 m.	WAL maturity cover pool	4,67 (Years)
Cover pool asset class	Mortgages	Overcollateralization (nominal/committed)	48,20%/ 8,11%
Repayment method	Soft Bullet	Min. overcollateralization	5%
Legal framework	Under the SFH legislation	Covered bonds coupon type	Fix (99,82%), Floating (0,18%)

Cut-off date Cover Pool information: 30.09.2018.

Content

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Summary

This rating report covers our analysis of the mortgage covered bond (*Obligations à l'Habitat* - OH) program issued under French law by Crédit Agricole Home Loan SFH („Crédit Agricole"). The total covered bond issuance at the cut-off date (30.09.2018) had a nominal value of EUR 28.144,72 m, backed by a cover pool with a current value of EUR 41.710,21 m. This corresponds to a nominal overcollateralization of 48,20%. 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") has assigned the covered bond program an AAA rating. The AAA rating represents the highest level of credit quality and the lowest investment risk.

Key Rating Findings

+ Covered Bonds are subject to strict legal requirements (SFH legislation)
+ Covered bond holders have recourse to the issuer
+ Overcollateralization above the minimum required
- Geographical concentration of the cover assets

Table1: Overview results

Risk Factor	Result
Issuer rating	A (rating as of 31.08.2018)
+ Legal and regulatory framework	+4 Notches
+ Liquidity and refinancing risk	+1 Notch
= Rating after 1st uplift	AAA
Cover pool & cash flow analysis	AAA
+ 2nd rating uplift	+3
= Rating covered bond program	**AAA**

Issuer Risk

Issuer

Our rating of Crédit Agricole Home Loan SFH is reflected by our issuer rating opinion of its parent company Crédit Agricole due to its group structure. The Crédit Agricole Mutuel was founded as a mutual bank on November 5th, 1894. The listed Crédit Agricole S.A. (CASA) acts as a central institution and, together with over 2,400 local banks and 39 regional banks, forms the cooperative banking group of Crédit Agricole S.A. (hereinafter “CA” or “group”). The group has around 27 million retail customers in France, 9.7 million mutual shareholders and about 140,000 employees worldwide.

The group is a leading actor in many fields in its home market of France, for example as the biggest provider of credit to the French economy. The group’s asset manager Amundi S.A. has just recently become the biggest in Europe with the acquisition of an Italian asset manager. The group has launched a comprehensive modernization and efficiency driven plan to boost profitability and to make it future-proof. The so-called “Strategic Ambition 2020” is now in its third year as of 2018.

The 39 regional banks and their 2,471 local banks hold the majority of the shares in Crédit Agricole S.A. through the holding company SAS Rue La Boétie. The regional banks are independent companies, but share common group values. The Fédération nationale du Crédit Agricole (FNCA) is regarded as the "parliament of the regional banks”, in which the regional banks are represented, managed, and where strategic goals and directions are set. Crédit Agricole S.A., as a central institution, coordinates all the activities of the group and the strategies of the specialized branches in France as well as abroad.

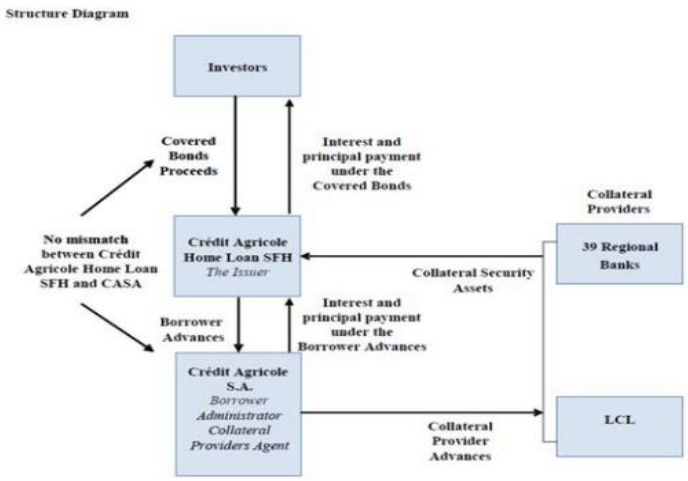
Structural Risk

Transaction structure

Table 2: Overview of all transaction’s parties | Source: CRA

Role	Name
Issuer	Crédit Agricole Home Loan SFH, France
Cover pool monitor / Trustee	Specific Controller is appointed by the SFH with the agreement of the ACPR
Cover pool administrator	Appointed by the national authority in case of issuer default

Figure1: Overview of Covered Bond emission | Source: Crédit Agricole Home Loan SFH



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. A sponsor bank remits, pledges or transfers cover assets to the purposive 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 by the issuance of unsubordinated senior secured OHs and to keep securities or instruments. The SFHs have to obey the laws and regulations codified by Articles L.515-35 of the French Monetary and Financial Code. Sponsor banks' advances are refinanced by means of covered bonds, while these covered bonds are protected by the legal privilege over the sponsor banks' advances, which are then protected by a pledge over cover assets, i.e. residential mortgage loans. The cover assets remain on the sponsor bank's balance sheet and/or on the SFH's balance sheet. In case of a sponsor bank default, the cover assets are passed over to the covered bond issuer.

Like for SCFs the implementation of EU 'Collateral Directive' 2002/47/EC and so Articles L. 211-35 to L.211-40 of the Code guarantee that the liabilities of the debtor are completely backed by either a remittance, a pledge or the transfer of the full title in favour of the SFH. These regulations admit a segregation of the claims of relevant real estate loans and, thus, it prevents an actual transfer (true sale) of these claims to the issuer while offering comparable legal security. The pledge or the transfer can be realized even in the case of bankruptcy of the corresponding collateral provider.

The SFH is mainly monitored by the French Banking Authority ('Autorité de Contrôle Prudentiel et de Résolution' – ACPR) and has to obey strict management standards in order to guarantee the company's financial security. The powers and duties of the ACPR are stringently regulated. Among others the ACPR has to monitor the maintenance of coverage tests in addition to rating agencies and the cover pool monitor. Furthermore, the ACPR verifies eligibility criteria, checks the quality of cover assets, controls exposure to market and liquidity risk, appraises operational risks and investigates the obligatory minimum overcollateralization requirements.

The SFH comply with the claims of the UCITS Directive 52(4) and end up with a 10% risk-weighting under CRD IV. If French guaranteed home loans fulfill certain criteria, i.e. the home loan lender is classified with credit quality step 2 or better, the guaranteed home loans conform to the 80% LTV limit, and the loan-to-income ratio is restricted to 33%, they are eligible for preferential treatment according to Article 129 CRR. French OHs are eligible as Level 1 assets for the LCR.

Regarding the implementation of the BRRD, which features resolution authorities with several particular resolution tools and deals with the failure of financial institutions, France has translated the directive - including the bail-in tool - into national law with the banking law on 7/26/2013 and an Ordonnance on 8/20/2015. The BRRD allows authorities to interfere as fast as possible in an affected or bankrupt institution in order to guarantee the continuance of the institution's financial and economic tasks and to mitigate the aftermath of an institution's bankruptcy on the economy and the financial system. This law should ensure that the corresponding resolution authority exempts covered bonds from bailing-in and write downs.

Insolvency Remoteness and Asset Segregation

As the issuer is not the originator, the cover assets are owned by and segregated in the sponsor bank but pledged to the SFH. In case of a sponsor bank default, the cover assets are passed over to the covered bond issuer. OHs are unsubordinated senior secured debts and rank pari passu with each other under a SFH program due to the strong legal privilege. Covered bond holders and creditors of other privileged debts benefit from the preferred creditor status and the priority of their claims, i.e. they are paid prior to all remaining creditors without any rights to the SFH's assets until their claims are completely wiped off. Although the general insolvency law might apply to the issuer, the SFH law interferes in several aspects like the legal privilege or the nullity provision during the hardening period. Considering the latter, the null and void decree of executed transactions throughout the hardening period would not be valid with respect to transfers of assets realized by a SFH.

Furthermore, the general provisions of French bankruptcy law regarding particular transactions, which were executed during the hardening period, do not hold for the SFH. Moreover, in case of insolvency of the bank that is manager and servicer of the SFH, the SFH is allowed to directly quit any existing contracts. Finally, any insolvency proceedings of a company subscribing nominal capital in a SFH cannot be stretched out over to the SFH. Thus, the SFH benefits from security against the risks of insolvency by their holding company or the group to which it appertains.

In case of an issuer default, no automatic acceleration of the covered bond takes place. Covered bonds will continue to exist and they will be reimbursed at the time of their contractual maturity. The legal privilege stipulates that all claims have to be paid at their due dates and in precedence to all other payments. No other creditors may interfere and demand own outstanding debits until all preferred claims are met. All privileged debts rank *pari passu* and covered bond holders have recourse to the credit institution's bankruptcy estate upon cover pool default, which ranks senior to unsecured creditors.

Trustee

Usually, the SFH nominates an independent Asset Monitor and a specific controller, though few SFHs do not have both. The legal framework stipulates to nominate an independent Specific Controller and a Substitute Specific Controller, who have to be external auditors and accepted by the ACPR. With respect to the asset monitor agreement the asset monitor controls the calculations of the asset coverage test once a year. If the covered bond program fails the test or if the senior unsecured rating of the sponsor bank falls below a certain threshold, the test has to be conducted each month. Rating agencies have to reassure the ratings of the program. The specific controller and the substitute specific controller have to guarantee that the issuer obeys the SFH Law. Besides, they examine the eligibility, composition and valuation of cover assets. They check the matching of assets and liabilities with respect to rates and maturities and in case of any mismatches they have to inform the issuer and the ACPR. In case of erratic behaviour or carelessness the specific controller is responsible for any accrued losses. He or she has to affirm the amount of the cover assets for the covered bond programs and if the issuance exceeds EUR 500m he or she has to confirm the accuracy of the cover ratio on a quarterly basis. Furthermore, the specific controller has to periodically report to the ACPR.

Reporting

The SFH issuers have to disclose information on their cover pools and covered bond programs on their website. Usually the SFHs release the French Covered Bond Label Reports and the European Covered Bond Label Reports each quarter, while they publish the Cover pool investor reports on a monthly basis. Furthermore, the SFH has to announce but not publish the overcollateralization ratio, the calculations on the liquidity buffer, the mismatch between the average maturity of assets and liabilities and the maturity mismatch forecast cover plan on a quarterly basis. Like under the SCF, each SFH covered bond issuer has to submit a quarterly report to the asset monitor and the ACPR including calculations of the minimum overcollateralization ratio, the minimum 6-month liquidity buffer, the maximum 18-month average life maturity mismatch and the coverage level in order to improve transparency.

Special Administrator

France fully complies with EBA's best practice regarding the administration of the covered bond program post the issuer's insolvency or resolution. This task is executed by the general insolvency court that is authorized with the insolvency of the issuer. The insolvency court has to obey particular provisions and comply with the regulations with regard to the treatment of covered bondholders, while the duties and powers assigned to the insolvency court are to act in the interest of the covered bond holders.

Eligibility Criteria

All qualifying assets are part of the cover pool. Eligible cover assets are first-rank residential home mortgages or other real estate security interests similar to first-rank mortgages. State guaranteed

real estate loans, as well as home loans and residential mortgages that are guaranteed by a third party credit institution or an insurance company are also allowed, while there is no limitation with respect to the overall amount of total OHs outstanding. Nevertheless, there are different limits in place with respect to the guarantor. If the guarantor is a group institution, merely 80% of the loan will be incorporated, while this limit will be reduced to 60% if the institution is an internal guarantor. If the rating of the guarantor is below investment grade, the guaranteed loans will be removed from the cover pool. Commercial real estate loans are not included in the eligible cover pool. Under OHs securitization of cover assets is allowed considering particular rules and criteria. Substitution assets up to 15% of total OHs outstanding are permitted as well. Within the threshold of the liquidity buffer, debt securities issued or guaranteed by a central authority of a Member state of the EU that fulfil CRR requirements are additional eligible cover assets.

For first-rank residential mortgage loans and guaranteed home loans a LTV limit of maximum 80% of the market value is in place, while the limit for state-guaranteed real-estate loans can amount to a maximum of 100% of the market value. Overall, higher LTV loans are comprised in the cover pool, though loans surpassing the relevant limit do not receive a value and are not taken into account in the asset coverage test. There exists no LTV cap, which makes the whole loan ineligible. Considering all covered bond programs, the LTV ratio cannot be beyond 100%. To guarantee high overcollateralization, the SFH conducts a dynamic asset coverage test, which charges the amount of the cover pool assets to be considerably higher than the amount of outstanding covered bonds, while the minimum overcollateralization level is geared to the cover assets' rating assessment. The maximum asset percentage adopted is 92.5% resulting in an overcollateralization of 8%. The real estate evaluations have to be conducted in accordance with law on an annual basis and the property values are indexed to the French INSEE or PERVAL each quarter. They are predicated on long-term characteristics and are executed by independent analysts. Usually price declines are fully accounted for by regular revaluation, while with respect to price increases a 20% haircut is adopted although not required by law. The property value is appraised within an annual report by the SFH and attested by the specific controller.

The geographical scope of legitimate cover assets is confined 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.

Both SCF and SFH use derivative instruments to hedge market risks. The treatment of derivatives fully conforms to EBA's best practice, as the legal framework requires that derivative instruments are permitted in the covered bond program solely for risk hedging purposes, while contracts in the cover pool cannot be cancelled upon the issuer's bankruptcy and no automatic acceleration takes place. Derivatives entered into by SFHs rank pari passu to covered bonds. With respect to SCFs only those derivatives rank pari passu to covered bond holders that are used to cover privileged assets, while those used to cover non-privileged debts rank subordinated to covered bond holders.

Systemic Relevance and External Support

According to the ECBC[1], covered bonds outstanding increased significantly in France over the past years. While the overall amount was EUR 264bn in 2008, it was almost EUR 312bn in 2017. This increase is mainly reflected in mortgage covered bonds outstanding, which increased from EUR 119bn in 2008 to EUR 185bn in 2017. In contrast, public sector outstanding remained the same at around 64bn during this period, while mixed asset covered bonds declined from EUR 80bn to EUR 62bn. The high outstanding amount is mainly due to the boosted issuance of mortgage covered bonds during the financial crisis, which increased from around EUR 29bn in 2009 to EUR 84bn in 2011 and dropped again to EUR 28bn in 2017. The issuance of both public sector covered bonds and mixed asset covered bonds significantly decreased during the past ten years.

[1] Source: EMF-ECBC (2018), ECBC: European Covered Bond Fact Book 2018, EMF-ECBC

With a market share of approx. 15% in relation to the mortgage covered bonds segment as of 2017, Crédit Agricole Home Loan SFH is an important issuer on the French market, with a portfolio consisting entirely of residential loans in France. On the other hand we have contemplated the importance of Crédit Agricole in the French covered bonds market in our analysis.

Summary Structural Risk

In general, the legislation under SFH accords defines the legal basis for covered bond programs in France, it 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.

We considered the structural framework in France as positive, accomplishing an adequate set of rules for French covered bonds. Furthermore, we contemplate the importance of Crédit Agricole in the French covered bonds market in our analysis. Due to those reasons we have set a rating uplift of four (+4) notches.

Liquidity- and Refinancing Risk

Minimum Overcollateralization

With respect to OHs a nominal overcollateralization of 5% has to be met at all times, while the coverage calculations have to be done on a monthly basis. Maturity mismatches should not surpass a time frame of 18 months, i.e. the maturity of cover assets should not surpass the maturity of covered bonds, while only those cover assets are relevant that are inevitable to conform to the minimum legal overcollateralization of 105%.

Short-term Liquidity Coverage

For SFH framework, there exists a liquidity requirement that stipulates to cover all cash flows for a time period of at least 180 days, thereby considering all forecasted cash flows of future payments on principal and interests on assets, and cash flows regarding derivative term instruments, while the 180 days liquidity gap can no longer be filled with intragroup liquidity line. For additional liquidity, the SFH is allowed to subscribe to its own OHs up to 10% of the entire privileged liabilities as far as they are merely applied as collateral assets with the central bank or the SFH calls them after 8 days.

Stress Tests and Matching

The issuer must ensure that the present value coverage and OC is also maintained in the case of changes in interest rates and exchange rates. For this purpose, the underlying cover pool must be subjected to a monthly stress test. If a deficit is detected on the basis of the present values determined by applying the respective stress scenario, the resulting shortfall must be added immediately to the cover pool. A decrease in the cover pool assets and corresponding OC may only be made if the result of a stress test does not show a shortfall.

Asset-Liability Mismatch

Asset-liability mismatches ("ALM") arise with different maturities of cover assets and covered bonds. All OH programs have to obey several provisions in order to hedge interest rate and currency risk, refinancing risk, commingling risk, set-off risk, market risk and so on. Both interest rate and currency risk have to be hedged.

Repayment Method

OH Covered bonds are issued in the forms of hard bullet and soft bullet maturity, i.e. a final repayment with/without extension optionality at the end of the term. Liquidity has to be guaranteed via a pre-maturity test for hard bullet bonds and potential maturity prolongation for soft bullet bonds (usu-

ally 12 months). This feature of OH covered bond programs is considered within our cash flow analysis.

Refinancing Costs

In the event of the issuer's insolvency, the special administrator (i.e. insolvency court) can sell assets of the cover pool or use them as a guarantee for liquidity operations if liquidity shortfalls are foreseeable. CRA's analysis assumes that refinancing gaps due to ALM will be closed by a sale of assets from the cover pool. In doing so, we take into account related costs in the form of a discount to the nominal value. The quantification of this discount is adjusted following an analysis of relevant market data and will be used in our cash flow analysis.

Summary Liquidity and Refinancing Risk

Compared to other international jurisdictions, the legislation under French SFH accords and the stipulated risk management processes for liquidity risks constitute a comparatively strict framework by which they can be effectively reduced.

The asset coverage test and the obligation to hedge interest rate and currency risks guarantee cash flow matching, while commingling risk is minimized by hedging techniques and the Collection Loss Reserve Amount. However, refinancing risks may not be structurally reduced under the hard bullet repayment structure, which can only be cushioned by sufficiently high overcollateralization, short-term cash availability, or other liquid funds. Nevertheless, we assess the overall legal provisions on liquidity management for French Covered Bond programs as positive and set a rating uplift of one (+1) notch.

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 30.09.2018, the pool of cover assets consisted of 694.575,00 debt receivables, of which 100% are domiciled in France. The total cover pool volume amounted to EUR 41.710,21 m in residential (100,00%), commercial (0,00%) and others (0,00%) loans. The ten largest debtors of the portfolio total to 0,02%. Table 3 displays additional characteristics of the cover pool:

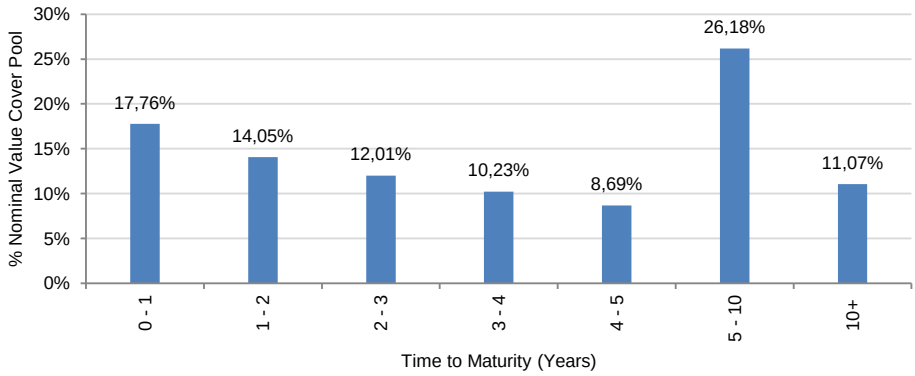
Table 3: Cover pool characteristics | Source: Crédit Agricole

Characteristics	Value
Cover assets	EUR 41.710 m.
Covered bonds outstanding	EUR 28.145 m.
Substitute assets	EUR 602,03 m.
Cover pool composition	
Mortgages	98,56%
Substitute assets	1,44%
Other / Derivative	0,00%
Number of debtors	NA
Mortgages Composition	
Residential	100,00%
Commercial	0,00%

Other	0,00%
Average asset value (Residential)	EUR 59,18 k.
Average asset value (Commercial)	EUR 0,00 k.
Non-performing loans	0,0%
10 biggest debtors	0,02%
WA seasoning	89,61 Months
WA maturity cover pool (WAL)	4,67 Years
WA maturity covered bonds (WAL)	7,10 Years

We have listed an extended view of the composition of the cover pool in the appendix section "Cover pool details", with, for example, a detailed regional distribution. The following chart displays the maturity profile of the cover assets at the cut-off date 30.09.2018 (see figure 2):

Figure 2: Distribution by remaining time to maturity I 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

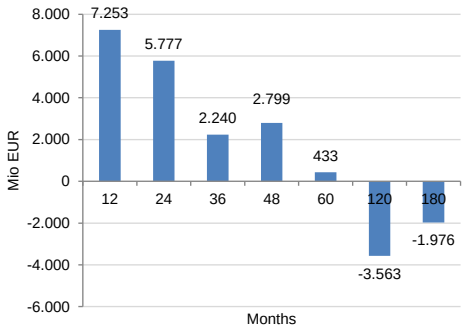
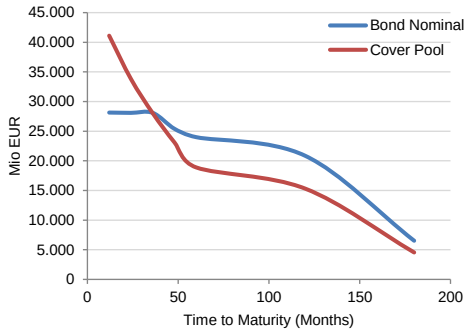


Figure 4: Amortization profile | Source: Crédit Agricole



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

Interest rate and currency risk

The legal framework provides for monthly stress tests to be conducted on interest and currency mismatches to maintain the mandatory OC. Therefore, interest rate risk could be mitigated by the 5% OC requirement. We however applied interest rate stresses on the cash flows for each rating level according to our methodology.

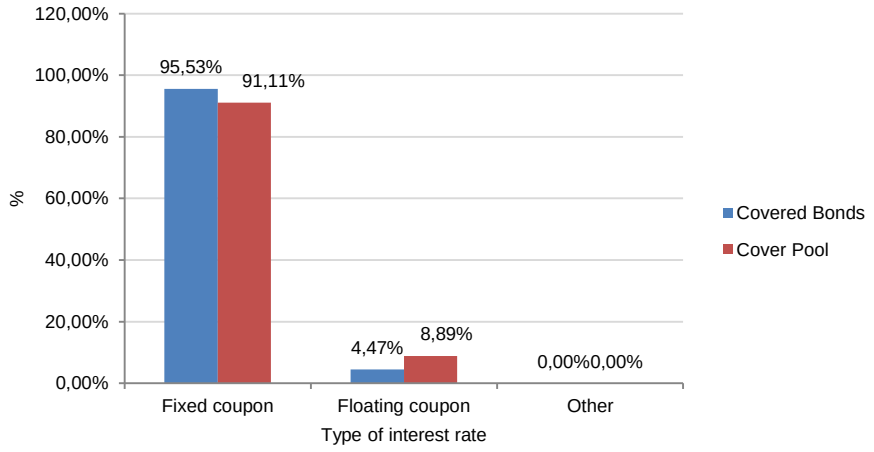
Currency risk, on the other hand, is limited for this program as 100,00% of the cover pool assets and 95,71% of the cover bonds are denominated in euro. This covered bond program also uses derivatives to hedge currency mismatches. In our Cash flow analysis we assume that open currency positions are fully hedged in the form of swap agreements; therefore, CRA did not apply any currency stresses for the cash flows.

Table 4: Program distribution by currency | Source: Crédit Agricole

Currency	Volume	Share (%)
Cover Pool		
EUR	41.710 Mio	100,00%
Covered Bond		
EUR	26.936 Mio	95,71%
CHF	1.209 Mio	4,29%

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

Figure 5: Type of interest rate | Source: Credit 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 historical issuer's NPL ratio 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 0,18% for the LHP. Furthermore CRA has considered a 15,00% correlation to define the LHP distribution. Table 5 disclosed the expected default rate for each relevant rating level.

In order to derive recovery and loss-severity base case assumption CRA has used historical data from mortgage price indexes. To determine loan-level recovery assumptions the resulting stressed recoveries 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 5)

Table 5: Cover Pool Base case assumptions | Source: CRA

Rating	Default Rate (%)	Recoveries (%)	Expected Loss (%)
AAA	19,20%	47,76%	10,03%
AA+	17,45%	50,11%	8,71%
AA	14,22%	55,78%	6,29%
AA-	11,97%	60,48%	4,73%
A+	11,05%	62,85%	4,11%
A	11,04%	62,88%	4,10%
A-	10,54%	64,17%	3,78%

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.

Asset-Sale Discount

In our model, short-term liquidity needs and liquidity needs due to asset-liability mismatches will be met with a sale of cover assets available for monetization. Based on secondary market data, CRA assumes a rating-level haircut on the asset value („Asset-Sale Discount“) which represents additional costs of disposal and market risks during the sale of cover assets. (see Table 6).

Yield Spread

Since cover assets often have a positive yield spread against the covered bonds issued, CRA uses available public information (i.e. issuers´ annual accounts) to size this assumed spread („Yield Spread“) (see table 6):

Table 6: Cash-Flow Model assumptions | Source: CRA

Rating level	Asset-Sale Discount	Yield Spread
AAA	69,06%	0,92%
AA+	63,51%	0,95%
AA	59,93%	0,97%
AA-	56,52%	0,99%
A+	53,90%	1,00%
A	51,75%	1,02%
A-	48,95%	1,03%

Rating Scenarios

Scenarios that have been tested in our cash flow model rely on the variation of 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. In total, the cash flow analysis revealed that the portfolio, given all information available as of 30.09.2018, could be sufficient to repay bond nominal capital notwithstanding the occurrence of extraordinary events. On this basis, the rating of the cover pool within our covered bond program rating has been set at AAA.

Overcollateralization Break-Even Analysis

CRA also performed a break-even OC analysis. Such OC levels should bear the corresponding losses for a given rating scenario. Main drivers of the analysis are:

- ALM
- Loss level
- Interest rate spreads
- Foreign currency mismatches
- 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 7Table 7.

Table 7: Breakeven Analysis | Source: CRA

Rating Level	Breakeven OC
AAA	**12,99%**
AA+	11,20%
AA	8,25%
AA-	6,40%
A+	5,63%
A	5,56%
A-	5,13%

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 can be seen by a change in the implied rating. When stressed with worst-case recoveries and default assumptions, our model returned an unchanged base case equivalent rating of AAA (see Table 8):

Table 8: 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	AAA
+50%	AAA	AAA	AAA

Summary Cash-Flow Analysis

Based on public information and using the base case loss assumptions, the analysis showed that obligations can be paid in full and in a timely manner. Overall, the cash flow analysis revealed that the portfolio, given the used information, may ensure the repayment of bonds' nominal capital notwithstanding the occurrence of the presented stressed scenarios. Therefore, the rating of the cover pool within our covered bond program rating has been set at AAA. This ensures a maximum possible rating uplift of three (+3) notches for this program, however, the secondary rating uplift has been set at zero (0) notch as the maximum rating for this program has already been achieved.

Counterparty Risk

Transaction parties

Table 9: Participant counterparties | Source: Crédit Agricole

Role	Name	Legal Entity Identifier
Issuer	Crédit Agricole	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	Type of Swap
Crédit Agricole SA	969500TJ5KRTCJQWXH05	Cross Currency

Derivatives

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

Commingling

Incoming cash flows generated from the cover pool will normally be transferred to the Issuer and will be forwarded to the covered bond holders according to the payment terms and conditions. Should the issuer become bankrupt, there is a risk ("commingling risk") that funds may not be returned and commingled with the insolvency estate of the issuer. In order to avoid such risk, 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 upcoming cash flows from the cover pool assets. These cash flows 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	Initial Rating
Result	AAA
Rating Date	23.01.2019
Publication Date	30.01.2019

Details Cover Pool

Table 11: Characteristics of Cover Pool | Source: Crédit Agricole

Characteristics	Value
Cover Pool Volume	EUR 41.710 m
Covered Bond Outstanding	EUR 28.145 m
Substitute Assets	EUR 602 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 Pools' Composition	
Mortgages	98,56%
Total Substitution Assets	1,44%
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)	80,84%
Second home	3,51%
Non-owner occupied	15,65%
Agricultural	0,00%
Multi family	0,00%
Other	0,00%
Distribution by Commercial type	
Retail	ND2
Office	ND2
Hotel	ND2
Shopping center	ND2
Industry	ND2
Land	ND2
Other	100,00%
Average asset value (Residential)	EUR 59 k
Average asset value (Commercial)	EUR 0 k
Share Non-Performing Loans	0,00%
Share of 10 biggest debtors	0,02%
WA Maturity (months)	158,04
WAL (months)	56,04
Distribution by Country (%)	
France	100
Distribution by Region (%)	
Alsace	1,66
Aquitaine	5,53
Auvergne	1,52
Basse Normandie	1,96
Bourgogne	2,09
Bretagne	4,72
Centre	3,98
Champagne-Ardennes	1,73
Corse	0,55
DOM - TOM	1,42
Franche-Comté	2,03
Haute Normandie	2,38
Ile-de-France (Paris included)	19,07
Languedoc Roussillon	4,53
Limousin	0,70

Lorraine	1,99
Midi Pyrenées	4,49
Nord-Pas-de-Calais	5,28
Pays de Loire	5,82
Picardie	3,28
Poitou - Charentes	2,70
Provence-Alpes-Côte d'Azur	8,56
Rhones Alpes	14,00

Figure 6: Program currency mismatches | Source: Crédit Agricole

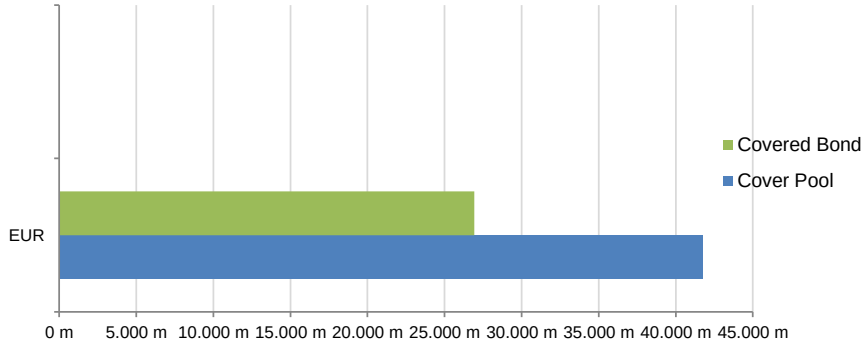
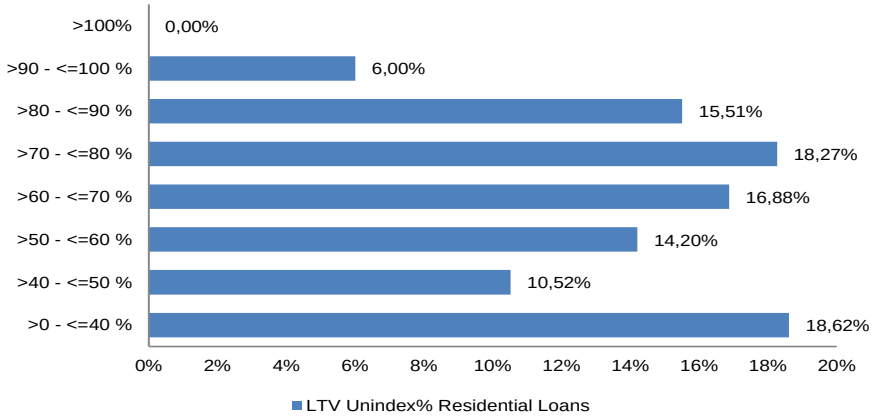


Figure 7: Unindexed LTV breakdown - residential pool | Source: Crédit Agricole



Key Source of Information

Documents (Date: 30.09.2018)
Issuer ▪ Audited consolidated annual reports of Crédit Agricole. (Group) 2014-2017 ▪ Final Rating report as of 31.08.2018 ▪ Rating file 2018 ▪ Miscellaneous Investor Relations Information and Press releases ▪ Peergroup-Data and other data from the S&P Global Market Intelligence Database
Covered Bond and Cover Pool ▪ HTT Reporting from Crédit Agricole Home Loan SFH (30.09.2018) ▪ Market data Mortgage Cover Bond Program.

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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 S&P Global Market Intelligence subject to a peer group analysis of 21 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 Home Loan SFH.

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 Edsson Rodriguez und AFM Kamruzzaman both based in Neuss/Germany. On 23.01.2019, 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.

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1. Transaction structure and participants

2. Transaction documents

3. Issuing documents

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The meaning of each rating category, the definition of default or recovery, and any appropriate risk warning, including a sensitivity analysis of the relevant key rating assumptions, such as mathematical or correlation assumptions, accompanied by worst-case scenario credit ratings as well as best-case scenario credit ratings, are explained.

The date at which the credit rating was released for distribution for the first time and when it was last updated including any rating outlooks, is indicated clearly and prominently in the "Basic data" card as a "Rating action"; first release is indicated as "initial rating", other updates are indicated as an "update", "upgrade or downgrade", "not rated", "confirmed", "selective default" or "default".

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