



CREDIT RISK TRANSFER PROGRESS REPORT

Fourth Quarter 2021

Overview of the Single-Family CRT Program

In 2012, the Federal Housing Finance Agency (FHFA) established guidelines governing single-family credit risk sharing by Fannie Mae and Freddie Mac with the intent of reducing their overall risk and, therefore, the risk they pose to taxpayers while they are in conservatorship. Fannie Mae and Freddie Mac started to implement their credit risk transfer (CRT) programs in 2013 and now transfer to private investors a substantial amount of the credit risk of new acquisitions the Enterprises assume for loans in targeted loan categories. Targeted loan categories are single-family fixed-rate mortgages with loan-to-value ratios (LTVs) greater than 60 percent and original term greater than 20 years. (HARP/Freddie Mac Relief Refinance/Fannie Mae Refi Plus loans are excluded, and other minimal exclusions apply.)

The single-family CRT programs include credit risk transfers using securities issuances, insurance/reinsurance transactions, senior-subordinate securitizations, and a variety of lender risk-sharing transactions. The Enterprises continue to innovate and experiment with different structures and attempt to expand the scope of their CRT programs as part of their efforts to further reduce credit risk where economically sensible.

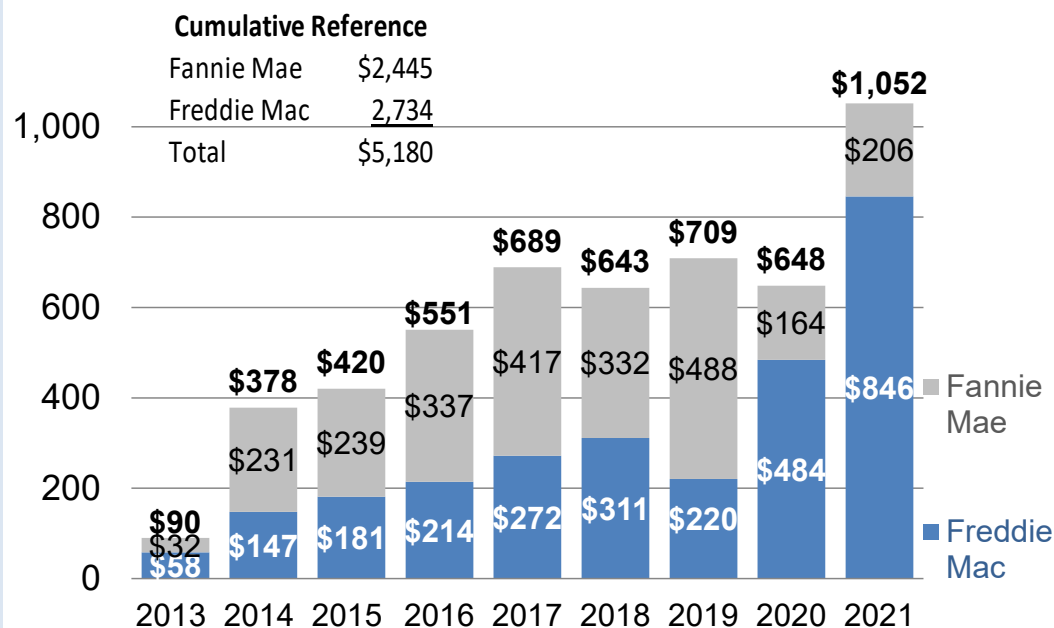
For a description of Single-Family Credit Risk Transfer Structures, see Appendix A.

In 2021, the Enterprises collectively achieved the highest level of single-family CRT issuance volume since the inception of the CRT programs. The Enterprises transferred a portion of credit risk on \$1.1 trillion of UPB in 2021, an increase of \$404 billion or 62 percent from 2020. The record level of annual single-family CRT issuances was influenced by the significant amount of mortgage refinance activity in 2020 and 2021, primarily as a result of historically low average mortgage rates.

The single-family CRT activity at Fannie Mae was lower than Freddie Mac in 2021, as Fannie Mae did not re-enter the CRT market until the fourth quarter of 2021.

Enterprise Single-Family Mortgage CRT Activity, 2013 - 2021

Reference Pool UPB¹
\$ in billions



Source: FHFA (Fannie Mae and Freddie Mac)

Numbers may not foot due to rounding.

¹ The UPB shown in the table is 100 percent of each associated reference pool at issuance.



Cumulative Single-Family CRT Activity

From 2013 through the end of 2021, the Enterprises transferred risk on approximately \$5.2 trillion of UPB, with a total RIF of \$162 billion, or 3.1 percent of UPB. Securities issuances (CAS and STACR) accounted for 67 percent of total RIF of CRT issuances.

Cumulative Single-Family Credit Risk Transfer Volume
\$ in millions

	Fannie Mae			Freddie Mac			Total		
	Reference Pool UPB ¹	Percent of Total RIF	RIF	Reference Pool UPB ¹	Percent of Total RIF	RIF	Reference Pool UPB ¹	Percent of Total RIF	RIF
Securities Issuances ²	1,638,546	50,115	67%	2,219,569	58,168	67%	3,858,115	108,283	67%
Insurance/Reinsurance ³	541,672	15,108	20%	439,693	26,320	30%	981,364	41,428	26%
Lender Risk Sharing	265,115	9,238	12%	47,564	1,505	2%	312,679	10,742	7%
Senior/Subordinate ⁴	-	-		27,600	1,119	1%	27,600	1,119	1%
Total	2,445,332	74,461		2,734,425	87,112		5,179,758	161,573	

Source: FHFA (Fannie Mae and Freddie Mac)
Numbers may not foot due to rounding.

¹ The UPB shown in the table is 100 percent of the associated reference pool UPB at issuance.

² For Freddie Mac, the same reference pool UPB backs STACR and associated ACIS transactions. For Fannie Mae, CAS and CIRT are backed by separate reference pools.

³ ACIS transactions listed under Insurance/Reinsurance are not associated with STACR deals.

⁴ Senior/Subordinate includes STACR-SPI transactions. For STACR-SPI transactions, the Reference Pool UPB represents the PCs issued by the PC Trust and the Risk-in-Force represents the sold portion of the non-guaranteed securities issued by the SPI Trust.



Single-Family CRT Activity

In 2021, the Enterprises transferred risk on \$1.1 trillion of UPB with a total RIF of \$25 billion. Securities issuances accounted for 57 percent of RIF, and reinsurance transactions accounted for 43 percent of RIF.

In the fourth quarter of 2021, Fannie Mae resumed issuing new CRT transactions to transfer mortgage credit risk through both securities issuances and insurance/reinsurance transactions. Prior to the fourth quarter of 2021, Fannie Mae had not entered into any new CRT transactions since the first quarter of 2020, when the Enterprise stopped entering into CRT transactions due to adverse market conditions. While market conditions subsequently improved, Fannie Mae did not enter into any new CRT transactions until October 2021, as the Enterprise continued to pause issuance of new CRT transactions to evaluate the potential impact of the FHFA's Enterprise Regulatory Capital Framework.

Single-Family Credit Risk Transfer Volume, 2021 \$ in millions

	Fannie Mae			Freddie Mac			Total		
	Reference Pool UPB ¹	RIF	Percent of Total RIF	Reference Pool UPB ¹	RIF	Percent of Total RIF	Reference Pool UPB ¹	RIF	Percent of Total RIF
Securities Issuances ²	142,201	3,095	58%	574,705	11,024	57%	716,906	14,119	57%
Insurance/Reinsurance ³	64,213	2,241	42%	270,902	8,234	43%	335,115	10,475	43%
Total	206,414	5,336		845,607	19,258		1,052,021	24,594	

Source: FHFA (Fannie Mae and Freddie Mac)
Numbers may not foot due to rounding.

¹ The UPB shown in the table is 100 percent of the associated reference pool UPB at issuance.

² For Freddie Mac, the same reference pool UPB may back STACR and associated ACIS transactions. For Fannie Mae, CAS and CIRT are backed by separate reference pools.

³ ACIS transactions listed under Insurance/Reinsurance are not associated with STACR deals.



2021 Single-Family CRT Transactions - Fannie Mae

In 2021, Fannie Mae transferred risk on total UPB of \$206 billion and RIF of \$5.4 billion. Securities issuances (CAS) accounted for 58 percent of total RIF. Fannie Mae re-entered the CRT market in the fourth quarter of 2021.

Deal Type	Deal Name ¹	Date	Reference Pool UPB ² (\$ in millions)	Risk transfer attach/detach points (in basis points)	Credit Protection	Enterprise Retained Portion ⁴ (\$ in millions)
					Sold portion of tranches: Bond proceeds ³ or RIF (\$ in millions)	
Securities Issuances						
CAS	2021-R01 (1)	10/27/21	72,302	25/200	1,202	244
CAS	2021-R02 (2)	12/01/21	35,117	35/330	984	175
CAS	2021-R03 (1)	12/29/21	34,783	25/300	909	135
Insurance/Reinsurance						
CIRT	FE 2020-1 ^{5 6}	02/01/20	1,057	35/350	33	4
CIRT	FE 2020-2 ^{5 6}	02/01/20	800	40/405	29	3
CIRT	2021-1	09/01/21	31,696	60/375	998	190
CIRT	2021-2	10/01/21	30,660	65/450	1,180	199
Total 2021			206,414		5,336	950

Numbers may not foot due to rounding

¹ Deal names denoted with a (1) contain low LTV pools (between 60.01% and 80.0%), and deal names denoted with a (2) contain high LTV pools (between 80.01% and 97.0%)

² The UPB shown in the table is 100 percent of the associated reference pool at issuance.

³ Proceeds from securities issuances will differ from face value when issued at a discount or premium.

⁴ Enterprise Retained Portion represents the amount of risk retained during the term of the CRT transaction by the Enterprise, excluding senior tranches.

⁵ Table reflects the portion committed in 2021 and may not reflect the full commitment amount.

⁶ Reference Pool UPB is reflected in the prior Credit Risk Transfer Progress Report as associated CAS transactions occurred in prior years.



2021 Single-Family CRT Transactions - Freddie Mac

In 2021, Freddie Mac transferred risk on total UPB of \$846 billion and RIF of \$19.3 billion. Securities issuances (STACR) accounted for 57 percent of total RIF.

Deal Type	Deal Name ¹	Date	Reference Pool UPB ² (\$ in millions)	Risk transfer attach/detach points (in basis points)	Credit Protection		
					Sold portion of tranches: Bond proceeds ³ or RIF (\$ in millions)	Insured via ACIS (\$ in millions)	Enterprise Retained Portion ⁴ (\$ in millions)
Securities Issuances ⁵							
STACR	2021-DNA1	01/29/21	58,041	25/250	970	271	210
STACR	2021-HQA1	02/23/21	62,980	25/325	1,386	409	252
STACR	2021-DNA2	03/09/21	55,687	25/250	1,188	-	204
STACR	2021-DNA3	04/23/21	44,585	25/250	950	-	165
STACR	2021-HQA2	06/25/21	56,551	25/300	550	927	219
STACR	2021-DNA5	07/23/21	71,388	25/200	1,186	-	242
STACR	2021-HQA3	09/30/21	37,677	25/325	1,071	-	153
STACR	2021-DNA6	10/29/21	89,347	25/200	1,484	-	303
STACR	2021-DNA7	11/12/21	67,196	25/225	1,276	-	236
STACR	2021-HQA4	12/10/21	31,255	25/350	963	-	131
Insurance/Reinsurance ⁶							
ACIS	2021-SAP1	02/01/21	45,699	25/265		1,042	169
ACIS	2021-SAP2	02/01/21	22,312	25/340		668	91
ACIS	2021-SAP3	04/01/21	45,056	10/190		770	86
ACIS	2021-SAP5	04/26/21	23,769	25/340		711	97
ACIS	2021-SAP7	07/29/21	56,538	25/240		1,155	202
ACIS	2021-SAP8	10/27/21	35,352	25/300		924	137
ACIS	2021-SAP9	10/27/21	19,046	25/350		588	79
ACIS	2021-SAP10	12/20/21	23,131	25/375		769	98
Total 2021			845,607		11,024	8,234	3,074

Numbers may not foot due to rounding.

¹ Deal names denoted with a DNA contain low LTV pools (between 60.01% and 80.00%), and deal names denoted with a HQA contain high LTV pools (between 80.01% and 97.00%).

² The UPB shown in the table is 100 percent of the associated reference pool at issuance.

³ Proceeds from securities issuances will differ from face value when issued at a discount or premium.

⁴ Enterprise Retained Portion represents the amount of risk retained during the term of the CRT transaction by the Enterprise, excluding senior tranches.

⁵ The same reference pool UPB may back STACR and ACIS transactions.

⁶ ACIS transactions listed under Insurance/Reinsurance are not associated with STACR deals.



Overview of the Multifamily CRT Program

The Enterprises have long established credit risk transfer programs for their multifamily businesses. Risk sharing with the private sector is an integral part of the multifamily business models of both Enterprises. Freddie Mac's program focuses on senior/subordinate structures via capital market transactions. Fannie Mae's program focuses on pro-rata risk sharing directly with lenders. Both Enterprises have developed programs similar to single-family transaction structures, focusing on credit risk securities issuances and insurance/reinsurance.

For a description of Multifamily Credit Risk Transfer Structures, see Appendix B.

Multifamily Credit Risk Transfer Transaction Structures

Risk Sharing Transactions: In Fannie Mae's multifamily program (known as DUS), approved lenders underwrite and service loans based on Fannie Mae's underwriting and servicing criteria. The lenders typically share in loan level credit losses in two ways: (1) lenders share up to one-third of the losses on a pro-rata basis or (2) lenders bear losses up to the first 5 percent of the unpaid principal balance of the loan and share in remaining losses up to a prescribed limit. Fannie Mae requires DUS lenders to be financially strong with extensive underwriting and servicing experience. Additionally, DUS lenders must post collateral and maintain compliance with certain financial requirements when participating in risk-sharing with Fannie Mae.

Securitization with Subordination Transactions: Freddie Mac issues senior/subordinate notes to finance most of its multifamily originations, primarily through its K Deal structure. In these transactions, Freddie Mac sells a pool of mortgage loans into a third-party trust. The trust issues subordinate and senior bonds that are tied to the performance of the pool of mortgage loans. Payments to bond investors come from the mortgage loan pool cash flows. Freddie Mac acquires the senior bonds and sells pass-through certificates (K Deals) backed by the senior bonds. Freddie Mac guarantees the senior K Deals. The trust sells the non-guaranteed subordinate bonds directly to investors.

Insurance and Reinsurance Transactions: Multifamily CRT transactions with the insurance/reinsurance industry are similar to the pool-level structures currently utilized for the single-family business.

Capital Markets Transactions: Multifamily CRT transactions through capital markets are similar to the pool-level structures currently utilized in the single-family business.



2021 Multifamily CRT Activity

Fannie Mae

Fannie Mae primarily transfers credit risk through its DUS program, where lenders typically share in loan level credit losses in two ways: (1) lenders share up to one-third of the losses on a pro-rata basis or (2) lenders bear losses up to the first 5 percent of the unpaid principal balance of the loan and share in remaining losses up to a prescribed limit.

In 2021, through the DUS program, Fannie Mae transferred a portion of credit risk on over 99 percent, or approximately \$76 billion, of its multifamily new acquisitions.¹ Additionally, Fannie Mae continued to grow its multifamily credit risk transfer program, in which Fannie Mae transfers a portion of the risk it retained from DUS transactions to a panel of reinsurers.

In the fourth quarter of 2021, Fannie Mae re-entered the CRT market executing two multifamily CIRT (MCIRT) transactions with total UPB of \$19.8 billion and RIF of \$366 million. Fannie Mae did not execute any Multifamily Connecticut Avenue Securities (MCAS) transactions in 2021.

Freddie Mac

In 2021, through its multifamily securitization program, Freddie Mac issued \$80.6 billion of multifamily securities.

<u>Senior/Subordinate Structure</u>	<u>Amount</u>
K Deals	\$63.5 billion
SB Deals	\$5.1 billion

In 2021, Freddie Mac transferred a portion of credit risk on 95 percent of its 2020 multifamily new acquisitions. Since 2009, Freddie Mac has securitized senior-subordinate notes through its K Deals to transfer risk on approximately 90 percent of the UPB of its multifamily loan acquisitions. K Deals transfer most of the credit risk to investors through subordinated bonds that are structured to absorb expected and unexpected credit risk.

SB Deals are based on small balance loans (SBL). Freddie Mac sells SBLs to a third-party trust which issues private-label securities backed by the SBLs. Freddie Mac guarantees these publicly offered senior securities issued by the third-party trust. In some cases, Freddie Mac may issue structured pass-through securities. The unsecured securities issued by the third-party trust are privately offered.

In 2021, Freddie Mac executed three Multifamily Structured Credit Risk Notes (MSCR) transactions with total UPB of \$14.5 billion and RIF of \$827 million. Freddie Mac did not execute any Multifamily Credit Insurance Pool (MCIP) CRT transactions in 2021.

¹ Mortgages acquired in 2020.



Appendix A: Single-Family Credit Risk Transfer

Enterprise Efforts to Transfer Credit Risk to the Private Sector

The Enterprises' public purposes include providing broad national secondary market liquidity for residential mortgage financing, both for single-family and multifamily mortgages. The Enterprises provide market liquidity by acquiring mortgage loans from lenders and creating securities backed by those mortgages for sale to investors. Through the securitization process, the Enterprises transfer the interest rate and liquidity risk associated with holding mortgage loans. The securitization process generally does not, however, transfer credit risk on these loans.¹

Each Enterprise manages the credit risk of its mortgage acquisitions and guarantees the timely payment of principal and interest to mortgage-backed securities investors. The Enterprises charge a guarantee fee in exchange for providing this guarantee, which covers administrative costs, projected credit losses from borrower defaults over the life of the loans, and the cost of holding capital to protect against projected credit losses that could occur during stressful macroeconomic conditions.² The following sections describe the Enterprises' activities to share credit risk through credit risk transfer programs.

The Role of Primary Mortgage Insurance in Sharing Credit Risk

Under their charters, loans acquired by Fannie Mae and Freddie Mac that have LTV ratios above 80 percent are required to have loan-level credit enhancement either in the form of mortgage insurance, a repurchase agreement, or seller retained participation in the loan.

¹ Freddie Mac's securitization of its multifamily loans through K-deals does transfer credit risk in addition to interest rate and liquidity risk.

² Currently, the guarantee fee also includes a 10 basis point charge as required by Section 401 of the Temporary Payroll Tax Cut Continuation Act of 2011, codified at 12 USC 4547.

This is a longstanding statutory requirement that pre-dates the Enterprises' development of additional credit risk transfer programs. Primary mortgage insurance (PMI) is the form of charter-eligible credit enhancement used most often. Primary mortgage insurance, which can be paid by the borrower, the lender, or the Enterprise, is obtained at the front-end of the mortgage transaction prior to acquisition by the Enterprises.

The Enterprises establish PMI coverage requirements that specify the insurance coverage needed on individual loans, and these coverage requirements vary depending on the type of loan and the LTV of the loan. Currently, for 30-year loans, the typical standard level of coverage is roughly twice what is required to meet the Enterprises' minimum guidelines. The dollar amount of insurance coverage is referred to as risk-in-force (RIF). The RIF for each insured loan is calculated by multiplying the percentage of insurance coverage times the UPB of the mortgage. The total RIF for all PMI represents the maximum level of coverage for all loans with mortgage insurance and is roughly equivalent to the Enterprises' total risk exposure to PMI counterparties.

While the total RIF associated with PMI is large, the actual level of credit risk sharing provided through insurance claims paid depends on the number of insured loans that default and the severity of losses on those loans. The loan-level coverage structure of PMI differs from the pool-level coverage that is used in other kinds of credit risk sharing transactions. The difference between the loan-level coverage of PMI and the pool-level coverage of recent credit risk transfer transactions means that the RIF figures for these two categories are not strictly comparable.

Enterprise Credit Risk Transfer Programs

The Enterprises have fully integrated credit risk transfer programs into their business models.



Single-Family Credit Risk Transfer

The Enterprises have increased the amount of credit risk transferred year-over-year, and are now transferring credit risk on most higher risk new acquisitions for which credit risk transfer is economically sensible.

The Enterprises have also worked to develop a portfolio of different transaction structures,³ which include:

- Securities issuances
- Insurance/reinsurance transactions
- Senior/subordinate securities
- Lender front-end risk transfer transactions

As with primary mortgage insurance, the amount of credit risk transferred is referred to as RIF for the insurance products. For the Enterprises' securities issuances, Connecticut Avenue Securities (CAS) for Fannie Mae and Structured Agency Credit Risk (STACR) for Freddie Mac, and other products where securities are created, the amount of credit risk transferred is referred to as note size. For purposes of simplifying the discussion, this CRT Progress Report refers to the amount of credit risk transferred on all credit risk transfer transactions as RIF. The following subsections provide information about different single-family credit risk transfer structures.

³ Additional information about each of the various credit risk transfer products is available in FHFA's report entitled *Overview of Fannie Mae and Freddie Mac Credit Risk Transfer Transactions*, available at <https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/CRT-Overview-8-21-2015.pdf>.



Single-Family Credit Risk Transfer Transaction Structures

STACR/CAS Transactions: The Enterprises' securities issuance products include Fannie Mae's Connecticut Avenue Securities (CAS) and Freddie Mac's Structured Agency Credit Risk (STACR) securities. Those products accounted for 57 percent of the RIF entered into by the Enterprise during 2021. These securities are issued as Enterprise debt or debt of a bankruptcy-remote trust. While the trust does not hold the mortgage loans, the cash flows of the securities track the credit performance of a reference pool of mortgages. The Enterprise or the trust receives the proceeds from investors at the time of issuance and, in return, investors receive monthly payment from the Enterprise or the trust. That payment includes both interest and principal, with the principal payment based on the repayment and credit performance of the loans in the underlying reference pool.

The STACR/CAS structure has several key benefits. The liquidity of the to-be-announced (TBA) market is not affected by this structure because the loans referenced were previously pooled into guaranteed mortgage-backed securities and sold in the TBA market. The STACR and CAS transactions are also effectively fully collateralized by cash that investors pay to purchase the securities. This means that the Enterprises essentially have no counterparty or reimbursement risk with this structure.

Both Enterprises enhanced their CAS/STACR structures so that securities are issued by a third-party bankruptcy-remote trust where the trust qualifies as a REMIC. The REMIC structure eliminates the accounting mismatch associated with prior direct debt issuance transactions and limits investor exposure to Enterprise counterparty risk. Additionally, by qualifying as a REMIC, this structure introduces benefits for certain investors, such as REITs and foreign investors.

Other Single-Family Credit Risk Transfer Structures

The Enterprises use other credit risk transfer structures in addition to the STACR/CAS structure. Pursuing a broad portfolio of credit risk transfer transaction structures furthers FHFA's objectives of having the Enterprises diversify their investor base for credit risk transfers and being able to compare execution across different structures and market environments. The Enterprises have engaged in the following additional transaction types:

Insurance/Reinsurance Transactions: Insurance or reinsurance transactions are considered part of the credit risk transfer program and separate from the Enterprises' charter requirements applicable to loans with LTVs greater than 80 percent. To date, the Enterprises have focused on two pool-level products — Agency Credit Insurance Structure (ACIS) for Freddie Mac and Credit Insurance Risk Transfer (CIRT) for Fannie Mae. Instead of providing coverage on individual loans as with loan-level primary mortgage insurance, these pool-level policies cover a specified percentage of aggregate credit risk for a pool that includes thousands of loans.

Through the CIRT and ACIS structures, the Enterprises purchase insurance primarily from diversified reinsurers. These transactions are partially collateralized and distributed among a variety of highly-rated insurers, reinsurers, and reinsurer affiliates of mortgage insurers, which reduces counterparty, reimbursement, and correlation risk.⁴ Freddie Mac and Fannie Mae have different approaches to the reference pools behind their respective reinsurance deals.

⁴ Reinsurers are often characterized by diversified lines of business, which help mitigate the risk that the Enterprises' counterparties may have increased claims at the same time as the Enterprises due to housing market stress.

Historically, the ACIS structure generally shared the same reference pool as STACR, and Freddie Mac allocated sales between capital markets and reinsurance investors. In 2021, Freddie Mac moved to more stand alone transactions, which have separate reference pools from STACR. Fannie Mae establishes separate reference pools for CAS and CIRT transactions. Fannie Mae and Freddie Mac disclose pricing for CIRT and ACIS transactions, respectively.

Senior/Subordinate Transactions: In a senior/subordinate securitization, an Enterprise sells a pool of mortgages to a trust which securitizes the cash flows into several tranches of bonds. The subordinated bonds (mezzanine and first-loss) are structured to absorb expected and unexpected credit losses, protecting the senior bond.

The collateral backing the senior/subordinate transactions typically consists of mortgages for which a TBA market does not exist. Examples include:

- Super-conforming mortgage loans, which have balances between the national conforming loan limit and higher limits applicable in high-cost areas,
- Adjustable Rate Mortgages (ARMs), and
- Multifamily mortgages.

Given 2018 modifications to the STACR program, Freddie Mac does not plan to programmatically execute senior/subordinate transactions in the future.



Front-End Credit Risk Transfer Transactions

Front-end credit risk transfer transactions are structured so that risk is transferred prior to, or simultaneous with, Enterprise loan acquisition. To date, the Enterprises have executed front-end transactions with lenders, insurance companies, and reinsurance companies.

Lender Risk Sharing: Lender front-end risk sharing may be structured through the issuance of securities, which allows the originating lender to either hold the credit risk by retaining the securities or sell the credit risk by selling the securities to credit risk investors. Alternatively, lender front-end risk sharing may be executed without any securities issuance, whereby a lender retains all the credit risk transferred by the Enterprise but generally fully collateralizes its obligation.

For all front-end transactions, lenders are required to retain a material portion of the risk on the underlying loans and to collateralize their retained loss position.

In 2020, the Enterprises discontinued Lender Risk Sharing CRTs and transitioned to securities and insurance-based transactions.

Front-End Insurance Transactions: Insurers and reinsurers participating in front-end transactions are generally diversified companies that provide collateral to mitigate counterparty risk. Participating insurers/reinsurers commit to insure, on a forward basis, loans meeting the Enterprises' credit eligibility guideline. The fill-up period for these commitments may range from 12-24 months. Because participating insurers/reinsurers cover a pool of loans that is acquired on a forward basis and the credit profile of the final covered pool may differ from the reference pool used to price the transaction, these front-end insurance transactions may include concentration limits for certain risk attributes and/or a recalibration of the transaction pricing based upon the final profile of the covered pool. Loans covered under these transactions with LTVs greater than 80 percent typically have traditional primary mortgage insurance.



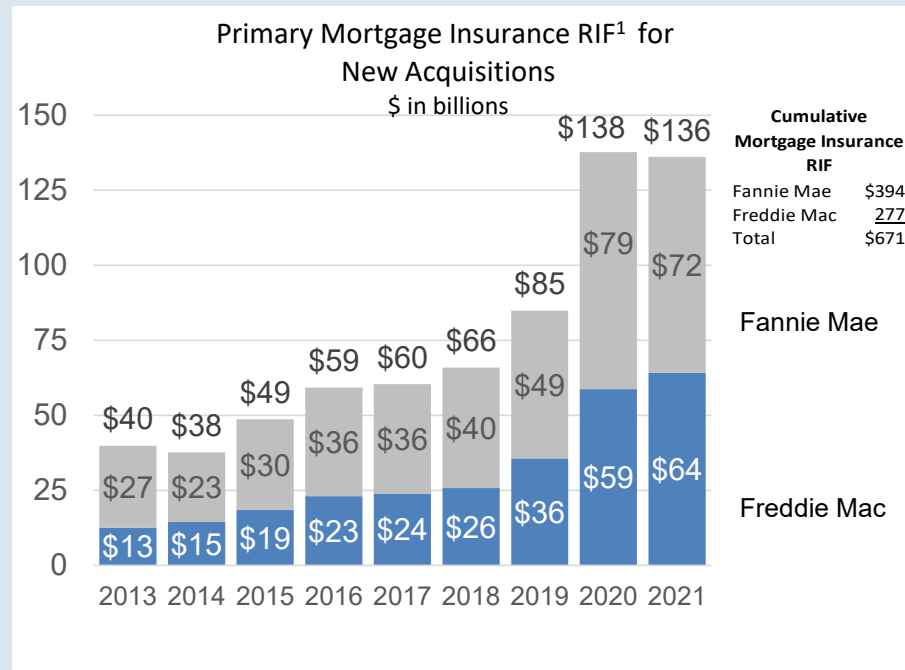
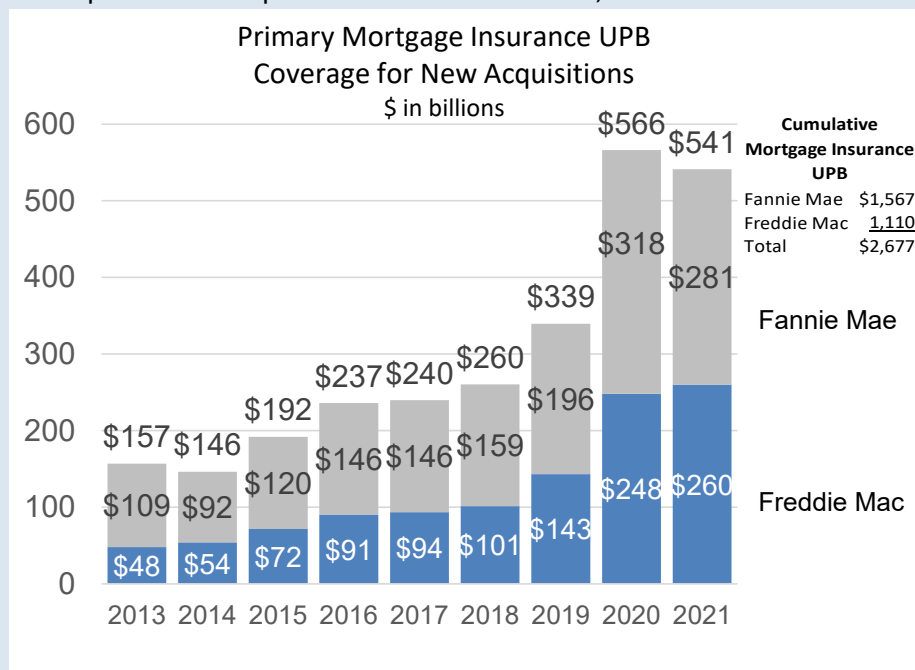
The Role of Primary Mortgage Insurance in Single-Family CRT Transactions

From the beginning of Fannie Mae's and Freddie Mac's CRT programs in 2013 through 2021, the Enterprises have transferred a portion of credit risk on approximately \$5.2 trillion in single-family loans through CRT. During the same period, a portion of credit risk on \$2.7 trillion in single-family loans, including many of the same loans also included in the CRT transactions has been transferred to primary mortgage insurers.

Single-family loans with LTVs above 80 percent are required to have loan-level credit enhancement in one of the following charter-eligible forms:

- Private mortgage insurance (PMI),
- Seller agreement to repurchase or replace the mortgage, or
- Seller retained participation in the loan.

PMI is the form of credit enhancement used most often. The charts below show the total UPB and RIF (measured at the time of Enterprise acquisition for each loan) of single-family loans with PMI acquired by the Enterprises between 2013 and 2021. When losses occur on loans with LTVs above 80 percent, private mortgage insurers provide credit loss coverage before credit risk transfer investors or the Enterprises. However, it should be noted that the Enterprise, not the CRT investor nor the lender that sold the loan to the GSE (i.e., the seller), is typically responsible for counterparty risk when PMI coverage is provided. Therefore, if the private mortgage insurer is not able to make the payment necessary to fulfill its credit loss coverage obligations, the Enterprise must step in and cover those losses, not the CRT investor nor the seller.



Source: FHFA (Fannie Mae and Freddie Mac)
Numbers may not foot due to rounding.

¹ While the total RIF associated with primary mortgage insurance is large, the actual level of credit risk sharing provided through paid insurance claims depends on the number of insured loans that default and the severity of losses on those loans. These figures assume that all PMI payments would be made by the mortgage insurer, not by Fannie Mae or Freddie Mac.



Appendix B: Multifamily Credit Risk Transfer

Risk sharing with the private sector is an integral part of the multifamily business models of both Enterprises. The following subsections provide information about different multifamily credit risk transfer structures.

Securitization with Subordination Transactions: Freddie Mac has developed variants of the K Deal program that follow a senior/subordinate structure, but differ primarily by the type of loans in the transactions:

- Q Deals are identical to K Deals except that the loans are not underwritten by Freddie Mac when originated.
- KT Deals are based on loans purchased by Freddie Mac that will not qualify for inclusion in a K Deal transaction for an extended period of time.
- SB Deals are based on low balance loans, SR Deals are based on rental housing loans, and M and ML Deals are based on loans made by government lenders to finance affordable housing projects. For the SB, SR, and M/ML Deal programs, Freddie Mac underwrites the loans and guarantees senior bonds issued by the trusts, but does not purchase bonds from the trusts and subsequently issues structured pass-through securities.

Notes tied to Reference Pool Performance Transactions: Freddie Mac's SCR notes are similar in structure to single-family STACR notes where the repayment of principal to the note holders is based on the performance of a reference pool of loans.

The SCR Notes transfer credit risk on certain multifamily mortgage loans supporting affordable housing developments. The loans are funded by bonds issued by state and local housing finance agencies and guaranteed by Freddie Mac. Freddie Mac is compensated for guaranteeing the housing finance agency bonds through the issuance of the SCR Notes.

Fannie Mae's multifamily capital markets transactions, the Multifamily Connecticut Avenue Securities (MCAS), transfer credit risk into the capital markets allowing Fannie Mae to reach an investor base outside of the reinsurance industry, as well as expanding additional credit protection to larger multifamily loans.

Risk Sharing Transactions: In Fannie Mae's multifamily program (known as DUS), Fannie Mae approved lenders underwrite and service loans based on Fannie Mae's underwriting and servicing criteria, which enables Fannie Mae to purchase or guarantee the loans without performing the underwriting. The lenders typically share in loan level credit losses in two ways: (1) lenders share up to one-third of the losses on a pro-rata basis or (2) lenders bear losses up to the first 5 percent of the unpaid principal balance of the loan and share in remaining losses up to a prescribed limit. By design, the DUS program loss sharing aligns lenders and Fannie Mae to maximize loan performance over the life of the loans. To minimize counterparty risk associated with lender risk-sharing, Fannie Mae requires DUS lenders to be financially strong with extensive underwriting and servicing experience. Additionally, DUS lenders must post collateral and maintain compliance with certain financial requirements when participating in risk-sharing with Fannie Mae.

Insurance and Reinsurance Transactions: Multifamily CRT transactions with the insurance/reinsurance industry are similar to the pool-level structures currently utilized for the single-family business. The Enterprises' insurance/reinsurance products include Fannie Mae's Multifamily Credit Insurance Risk Transfer (MCIRT) and Freddie Mac's Multifamily Credit Insurance Pool (MCIP).



Appendix C: CRT Principles, Concepts, and Definitions

CRT Principles

FHFA assesses all Enterprise credit risk transfer activities using the same key principles. These principles include:

Reduce taxpayer risk: Transactions should transfer a meaningful amount of credit risk to private investors.

Economically sensible: The program should consist of transactions in which the cost to the Enterprise for transferring the credit risk does not meaningfully exceed the cost to the Enterprise of self-insuring the credit risk being transferred.

Continuity of core business: Transactions should not interfere with the continued operation of the Enterprises' core business, including the efficient operation of the to-be-announced (TBA) market or the ability of borrowers to access credit.

Repeatable: Whenever possible, transactions should be part of a regular program of similar transactions.

Scalable: Transaction structures should be capable of being scaled without significantly affecting the economics or management of the transaction.

Counterparty strength: In transactions in which the credit risk being transferred is not fully collateralized, credit risk transfer counterparties to the Enterprises should be financially strong companies that are able to fulfill their financial commitments even in adverse markets.

Broad investor base: The program should include different transaction structures to attract a diversified and broad investor base with the objective of improving pricing, increasing secondary market liquidity, and promoting market stability.

Stability through economic and housing cycles: Transaction structures should be designed to ensure that at least some investors will remain in the market through all phases of the housing price cycle, including economic downturns.

Transparency: Parties to a transaction should provide public disclosure of transaction information, whenever practical.

Level playing field: Credit risk transfer transactions should only reflect the cost of transferring credit risk and should not favor large mortgage originators over small ones.

CRT Concepts and Definitions

First Loss Position: Credit risk for a pool of mortgages can be decomposed into expected loss (under baseline economic conditions), unexpected loss (under stressful, yet plausible, economic conditions), and catastrophic loss (beyond unexpected losses). While there is no single definition of first loss for purposes of credit risk transfers, FHFA interprets "first-loss position" as starting with the first dollar of loss through all expected losses.

Expected Credit Loss: Credit loss projected, on average, to occur if housing market conditions proceed according to a stable long-term trend, particularly with regard to house price levels. Even in a healthy housing market, a pool of mortgages is likely to experience some credit losses (i.e., defaults on the underlying mortgages) as some borrowers face trigger events such as illness, job loss, or other unanticipated events.

Unexpected Credit Loss: Credit loss over and above expected losses should there be a stressful, yet plausible, macroeconomic event, such as a severe downturn in house price levels as might accompany a recession (similar to what was experienced during the recent housing crisis), but short of catastrophic credit losses.



Catastrophic Credit Loss: Credit loss beyond unexpected loss that would be deemed highly unlikely to occur. There is no bright line between unexpected credit losses and catastrophic credit losses.

Credit Risk: In the case of residential mortgage loans, credit risk is risk of loss to a mortgage creditor stemming from a borrower's failure to repay the loan.

Credit Risk Transfer: Credit risk transfer occurs when a party exposed to credit risk transfers some or all of that risk to another party, usually accompanied by the payment of a fee for the other party's assumption of that risk. The Enterprises' credit risk transfer transactions are effective for a limited duration. The exact reimbursement terms and recognition of credit loss are a function of the specific credit risk transfer contract for that transaction. Risk transfer may result in the transferor's assumption of a different risk. For example, when an Enterprise transfers the credit risk on a mortgage loan for which the Enterprise has guaranteed payment of principal and interest, the Enterprise may assume risks associated with the counterparty, including reimbursement risk.

Counterparty Risk: Counterparty risk is the risk that a contractual counterparty will not perform in accordance with contract terms. This would include the counterparty's capacity to pay claims timely, such as its financial and operational strength, the depth and quality of its capital, and the diversification of its business. It also includes assessment of concentration exposures with that counterparty. When an Enterprise transfers the credit risk on a mortgage loan for which the Enterprise has guaranteed payment of principal and interest, the Enterprise assumes reimbursement risk from its risk transfer counterparties for losses incurred.

Reimbursement Risk: Reimbursement risk is the risk that the party(ies) to the credit risk transfer (front- or back-end) will not repay the Enterprise on time and in full for its portion of credit losses. When an Enterprise transfers credit risk while continuing to provide a guarantee to MBS investors for timely payments on principal and interest, the Enterprise assumes reimbursement risk from its risk transfer counterparty. This is an element of counterparty risk.

Front-End or Up-Front Credit Risk Transfer: This term applies to transactions in which the arrangement of the risk transfer occurs prior to, or simultaneous with, the acquisition of residential mortgage loans by an Enterprise. "Front-end" refers to the timing of the arrangement of the credit risk transfer and does not affect (either mitigate or exacerbate) the reimbursement risk assumed by an Enterprise.

Back-End Credit Risk Transfer: This term applies to transactions in which the arrangement of the risk transfer occurs after the acquisition of residential mortgage loans by the Enterprises. "Back-end" refers to the timing of the arrangement of the credit risk transfer and does not affect (either mitigate or exacerbate) the reimbursement risk assumed by an Enterprise.

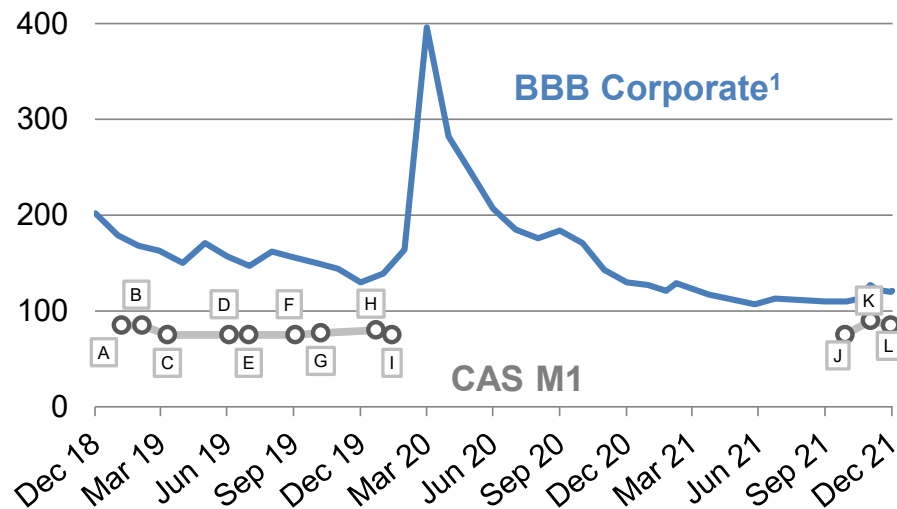
Risk-in-Force (RIF): This term, when applied to Primary Mortgage Insurance, refers to the dollar amount of insurance. For Enterprise securities issuances and other products where securities are created, RIF refers to the amount of credit risk transferred. For purposes of the CRT Progress Report, RIF refers to the amount of credit risk transferred on all credit risk transfer transactions and represents the maximum loss exposure that could be absorbed by CRT investors and counterparties.



Appendix D: Comparison of Single-Family CRT Market Pricing - Mezzanine Bonds to Corporate BBB Index

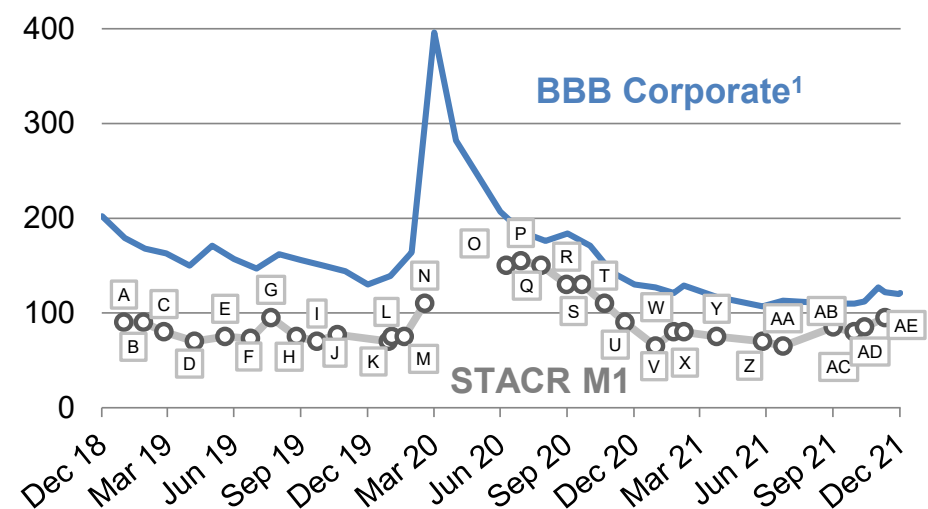
Credit spreads on the higher rated CRT mezzanine tranches performed generally similar to the corporate BBB index from the first quarter of 2019 to the end of 2021. Spreads widened sharply in March 2020 as a result of the emergence of the COVID-19 pandemic and tightened to near pre-pandemic levels by the end of 2021.

Fannie Mae CAS M1
Credit Spread at Issuance vs BBB
Corporate Bond Index (bps)



¹Bank of America Merrill Lynch US Corporate BBB Index

Freddie Mac STACR M1
Credit Spread at Issuance vs BBB
Corporate Bond Index (bps)



¹Bank of America Merrill Lynch US Corporate BBB Index

A - 2019 R01	E - 2019 R05	I - 2020 R02
B - 2019 R02	F - 2019 R06	J - 2021 R01*
C - 2019 R03	G - 2019 R07	K - 2021 R02
D - 2019 R04	H - 2020 R01	L - 2021 R03

* Initial SOFR-indexed CAS transaction

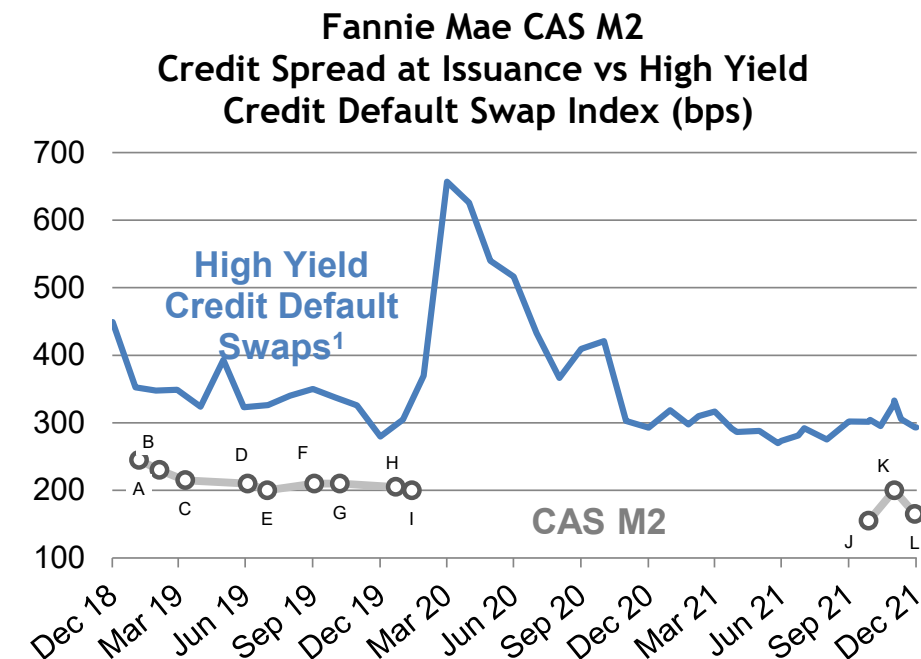
A - 2019 DNA1	K - 2020 DNA1	V - 2021 DNA1
B - 2019 HQA1	L - 2020 HQA1	W - 2021 HQA1
C - 2019 DNA2	M - 2020 DNA2	X - 2021 DNA2
D - 2019 HQA2	N - 2020 HQA2	Y - 2021 DNA3
E - 2019 HRP1	O - 2020 DNA3	Z - 2021-HQA2
F - 2019 DNA3	P - 2020 HQA3	AA - 2021 DNA5
G - 2019 FTR2	Q - 2020 DNA4	AB - 2021 HQA3
H - 2019 HQA3	R - 2020 HQA4	AC - 2021-DNA6
I - 2019 DNA4	S - 2020 DNA5*	AD - 2021 DNA7
J - 2019 HQA4	T - 2020 HQA5	

* Initial SOFR-indexed STACR transaction

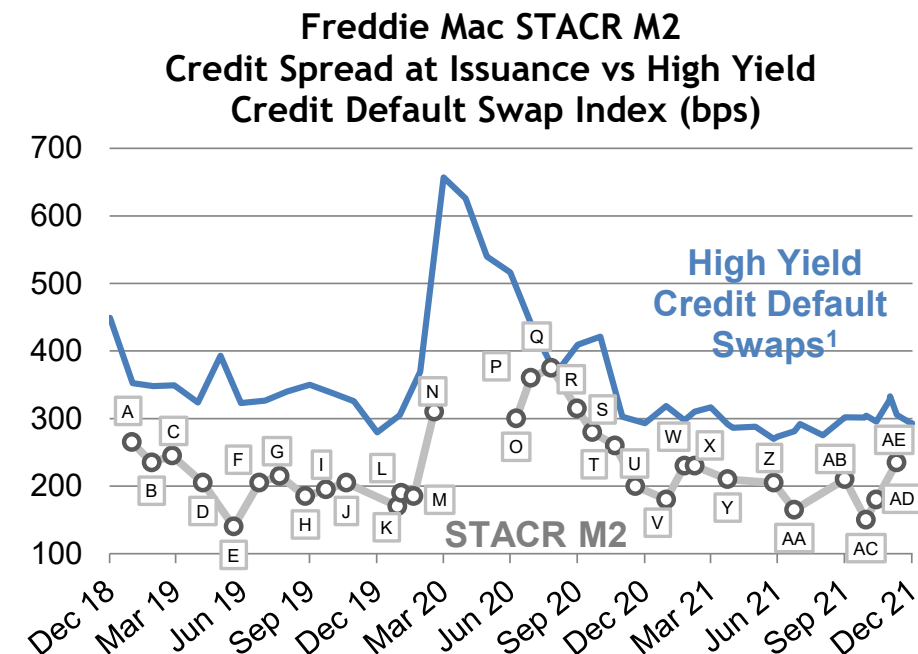


Appendix E: Comparison of Single-Family CRT Market Pricing - Mezzanine Bonds to High Yield Credit Default Swaps

Credit spreads on the lower rated CRT mezzanine tranches performed generally similar to the high yield credit default swap index from the first quarter of 2019 to the end of 2021. Spreads widened sharply in March 2020 as a result of the emergence of the COVID-19 pandemic and tightened to near pre-pandemic levels by the end of 2021.



¹Markit CDX North American High Yield Index



¹Markit CDX North American High Yield Index

A - 2019 R01	E - 2019 R05	I - 2020 R02
B - 2019 R02	F - 2019 R06	J - 2021 R01*
C - 2019 R03	G - 2019 R07	K - 2021 R02
D - 2019 R04	H - 2020 R01	L - 2021 R03

* Initial SOFR-indexed CAS transaction

A - 2019 DNA1	K - 2020 DNA1	V - 2021 DNA1
B - 2019 HQA1	L - 2020 HQA1	W - 2021 HQA1
C - 2019 DNA2	M - 2020 DNA2	X - 2021 DNA2
D - 2019 HQA2	N - 2020 HQA2	Y - 2021 DNA3
E - 2019 HRP1	O - 2020 DNA3	Z - 2021-HQA2
F - 2019 DNA3	P - 2020 HQA3	AA - 2021 DNA5
G - 2019 FTR2	Q - 2020 DNA4	AB - 2021 HQA3
H - 2019 HQA3	R - 2020 HQA4	AC - 2021-DNA6
I - 2019 DNA4	S - 2020 DNA5*	AD - 2021 DNA7
J - 2019 HQA4	T - 2020 HQA5	

* Initial SOFR-indexed STACR transaction

