



CREDIT RISK TRANSFER PROGRESS REPORT

March 2017

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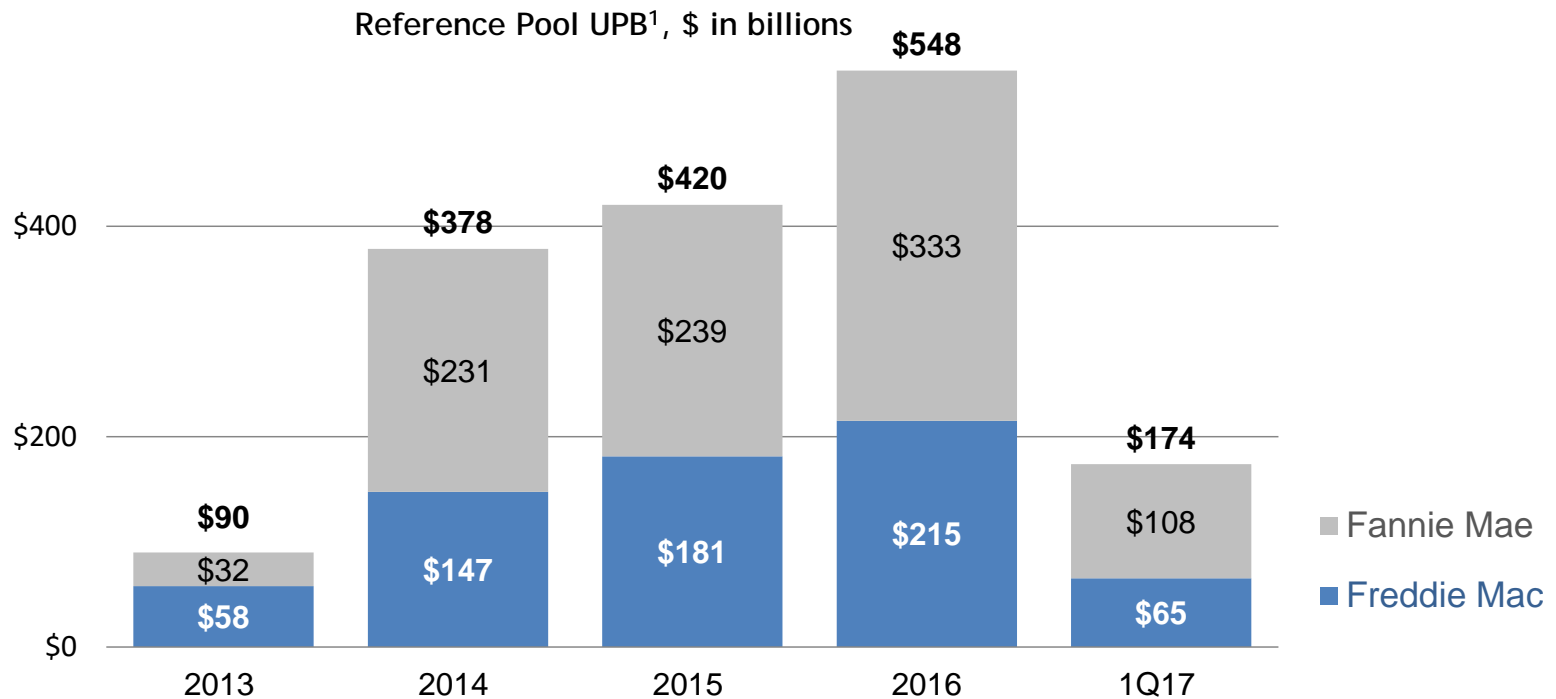


Overview of the Program

In 2012, the Federal Housing Finance Agency (FHFA) established guidelines governing single-family credit risk sharing by Fannie Mae and Freddie Mac (the Enterprises) with the intent of reducing their overall risk and, therefore, the risk they pose to taxpayers while 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. The CRT programs include credit risk transfers via debt issuances, insurance/reinsurance transactions, senior-subordinate securitizations, and a variety of lender collateralized recourse transactions. As outlined in the annual Conservatorship Scorecard, 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.

From the beginning of the Enterprises' Single-Family CRT programs in 2013 through March 2017, Fannie Mae and Freddie Mac have transferred a portion of credit risk on \$1.6 trillion of unpaid principal balance (UPB), with a combined Risk in Force (RIF) of about \$54.2 billion, or 3.4 percent of UPB. An additional \$779 billion of UPB and \$197 billion of RIF has been transferred to primary mortgage insurers from 2013 through Q1 2017 as described on page 4. Through CRT and mortgage insurance, the majority of the underlying mortgage credit risk on mortgages targeted for CRT has been transferred to private investors.

Enterprise Single-Family Mortgage CRT Activity, 2013 - Q1 2017



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



Q1 2017 CRT¹ Activity

In Q1 2017, the Enterprises transferred risk on \$174 billion of UPB with a total RIF of \$5.5 billion. Debt issuances accounted for 77 percent of RIF, and reinsurance transactions accounted for 19 percent of RIF.

**Credit Risk Transfer Volume²
for Q1 2017**

\$ in millions	Fannie Mae			Freddie Mac			Total		
	Reference Pool UPB ³	RIF ⁴	Percent of RIF	Reference Pool UPB ³	RIF ⁴	Percent of RIF	Reference Pool UPB ³	RIF ⁴	Percent of RIF
Debt Issuances	83,746	2,681	80%	63,624	1,555	73%	147,370	4,236	77%
Reinsurance	20,391	510	15%		516	24%	20,391	1,026	19%
Whole Loan Securities			0%	640	38	2%	640	38	1%
Lender Recourse	488	65	2%				488	65	1%
Front-End Reinsurance	3,734	95	3%	1,171	31	1%	4,905	126	2%
Total	108,359	3,351		65,435	2,140		173,793	5,491	

¹ See pages 18-20 for a description of Credit Risk Transfer Structures.

² The same reference pool backs STACR and ACIS transactions; CAS and CIRT are backed by separate reference pools.

³ Reference pool UPB at issuance.

⁴ RIF represents the maximum loss exposure that could be absorbed by CRT investors.



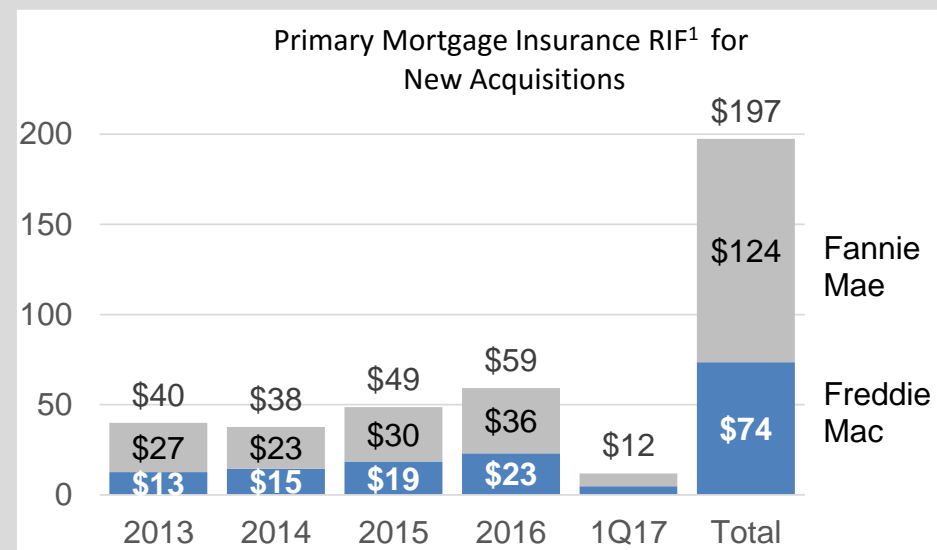
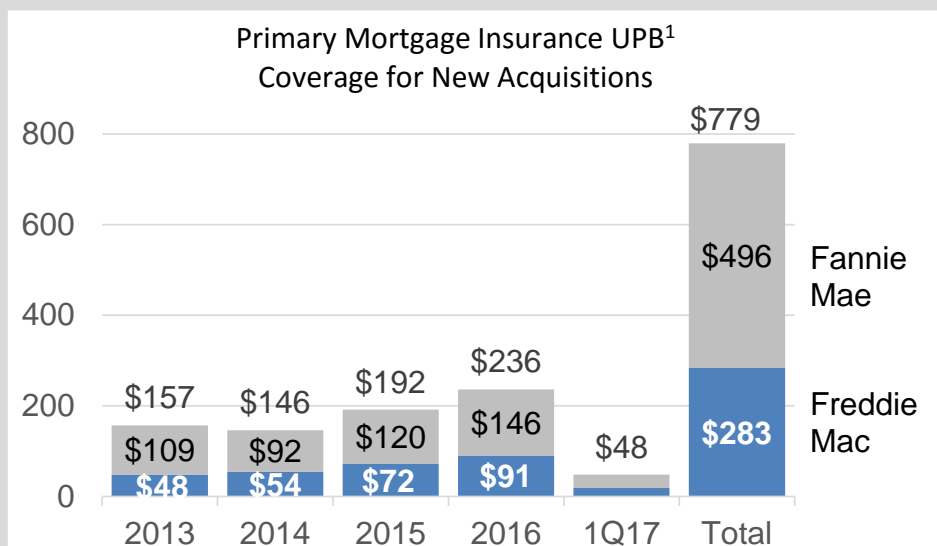
The Role of Primary Mortgage Insurance in CRT Transactions

From the beginning of Fannie Mae and Freddie Mac’s CRT programs in 2013 through Q12017, the Enterprises have transferred a portion of credit risk on about \$1.6 trillion in single-family loans through CRT.

Between 25 to 30 percent of the Enterprises’ CRT debt issuances (STACR/CAS) have been backed by loans with loan to values (LTVs) above 80 percent, which are required to have loan-level credit enhancement in one of the following charter-eligible forms:

- Private mortgage insurance (PMI),
- Recourse agreement, 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) with PMI acquired by the Enterprises for each year between 2013 and Q1 2017. 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, is 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.



¹ In billions of dollars. 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.

Fannie Mae CRT Transactions

In Q1 2017, Fannie Mae transferred risk on \$108 billion UPB, with a total RIF of \$3.4 billion. Debt issuances (CAS) accounted for 80 percent of total RIF of CRT issuances.

Fannie Mae modified the first loss portion of the CAS structure in 2017. The 1 percent first loss B-bond was split into two 0.50 percent bonds (B1 and B2), with Fannie Mae retaining the entire 0.50 percent B2 bond.

Deal Type	Deal Name	Date	Reference Pool UPB ⁵ (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ⁶ or RIF (in millions of \$)	Retained portion of tranches (in millions of \$)
CAS ¹	2017-C01	01/26/17	43,758	50/375	1,351	290
CAS ¹	2017-C02	03/22/17	39,988	50/400	1,330	270
CIRT ²	2017-1	02/01/17	18,091	50/300	452	90
CIRT ²	2017-2	02/01/17	2,300	50/300	58	12
Lender Recourse ³	Total Q1 2017		488		65	
Front-End Reinsurance ⁴	Total Q1 2017		3,734		95	
Total Q1 2017			108,359		3,351	662

¹ See page 18 for a description of this transaction.

² See page 19 for a description of this transaction.

³ See page 20 for a description of this transaction.

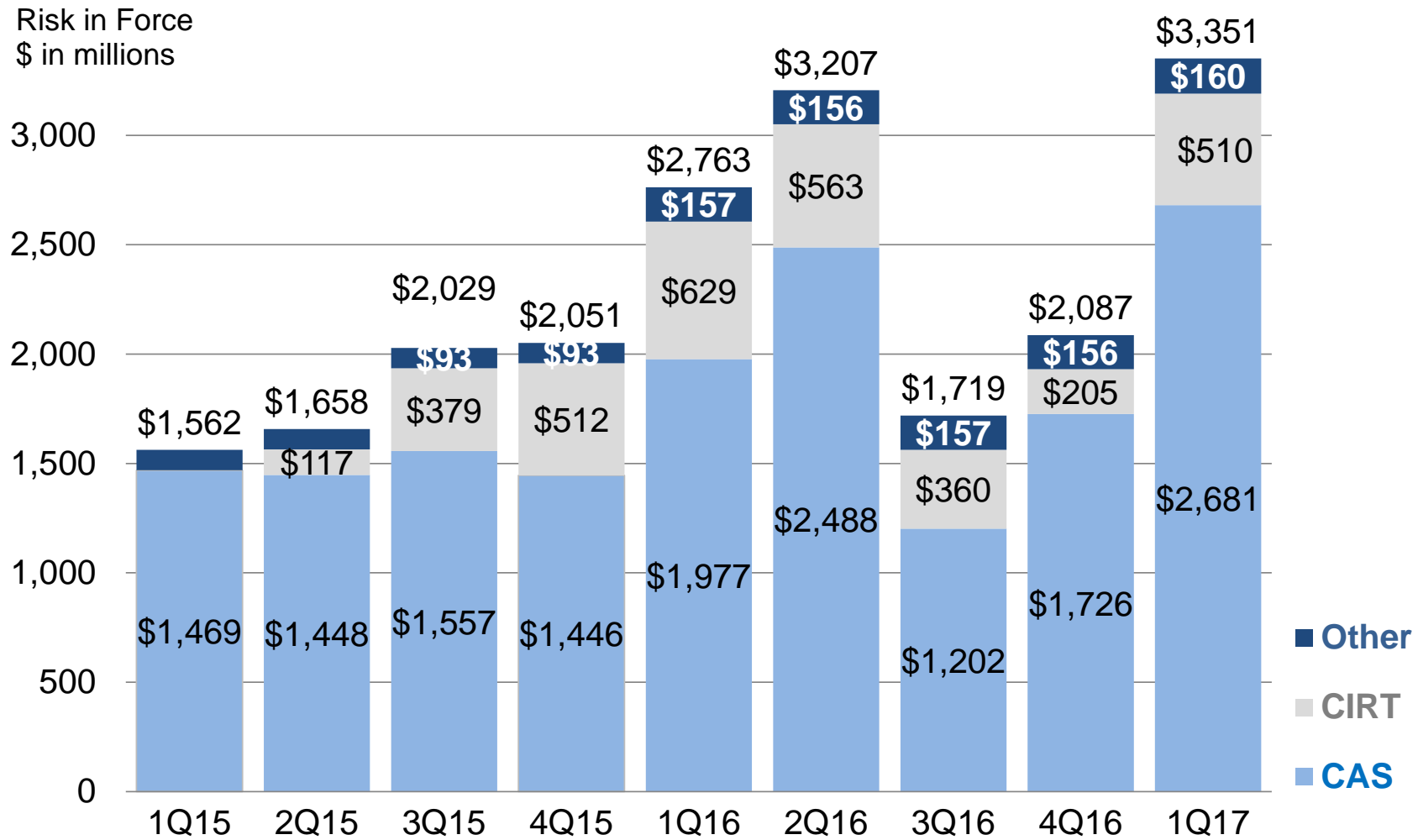
⁴ Delivered UPB: Current deliveries during the aggregation period through 3/31/2017

⁵ The UPB shown in the table is 100 percent of the associated reference pool at issuance.

⁶ Note size represents total maximum credit risk transfer coverage and is equivalent to RIF.



**Fannie Mae CRT Transaction Volume
2015 - Q1 2017**



Freddie Mac CRT Transactions

In Q1 2017, Freddie Mac transferred risk on \$65 billion UPB with a total RIF of \$2.1 billion. Freddie Mac modified the first loss portion of the STACR structure in 2017. The 1 percent first loss B-bond was split into two 0.50 percent bonds (B1 and B2), with Freddie Mac retaining 90 percent of the first 0.50 percent B2 bond. In addition, Freddie Mac reduced the detachment point of the M1 bond by about 1.25 percentage points.

Deal Type	Deal Name	Date	Reference Pool UPB ³ (in millions of \$)	Structured Agency Credit Risk (STACR) ¹		Agency Credit Insurance Structure (ACIS) ²
				Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ⁴ or RIF (in millions of \$)	Insured via ACIS (in millions of \$)
STACR ¹	2017-DNA1	02/07/17	33,965	0/375	802	264
STACR ¹	2017-HQA1	02/22/17	29,659	0/425	753	252
WLS ²	2017-SC01	03/17/17	640	0/600	38	
Front-End Reinsurance			1,171	35/300	31	
Total Q1 2017			65,435		1,624	516

¹ See page 18 for a description of this transaction.

² See page 19 for a description of this transaction.

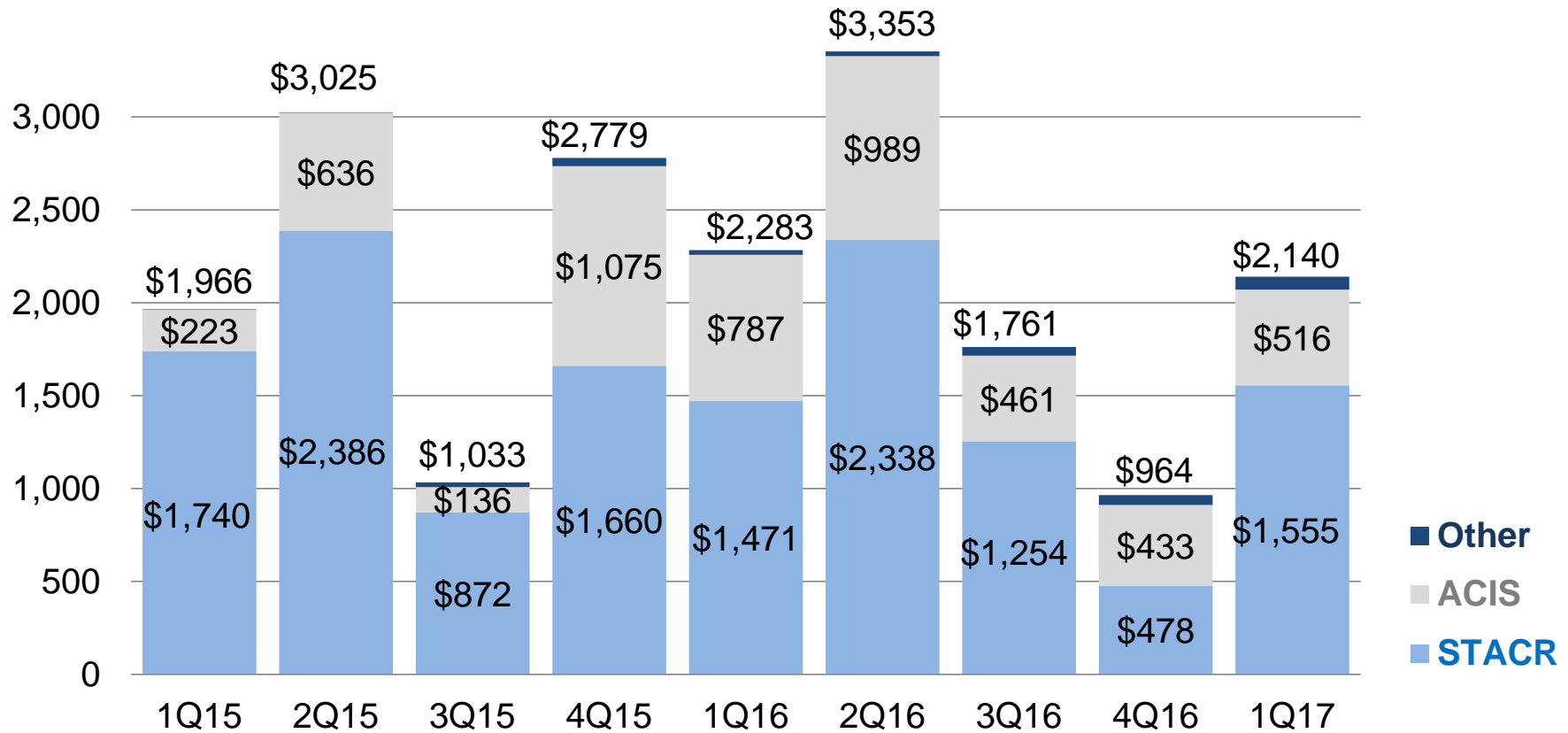
³ The same reference pool UPB is used for both debt issuance (STACR) and insurance/reinsurance transactions (ACIS).

⁴ Note size represents total maximum risk transfer coverage and is equivalent to RIF.



Risk in Force
in \$ millions

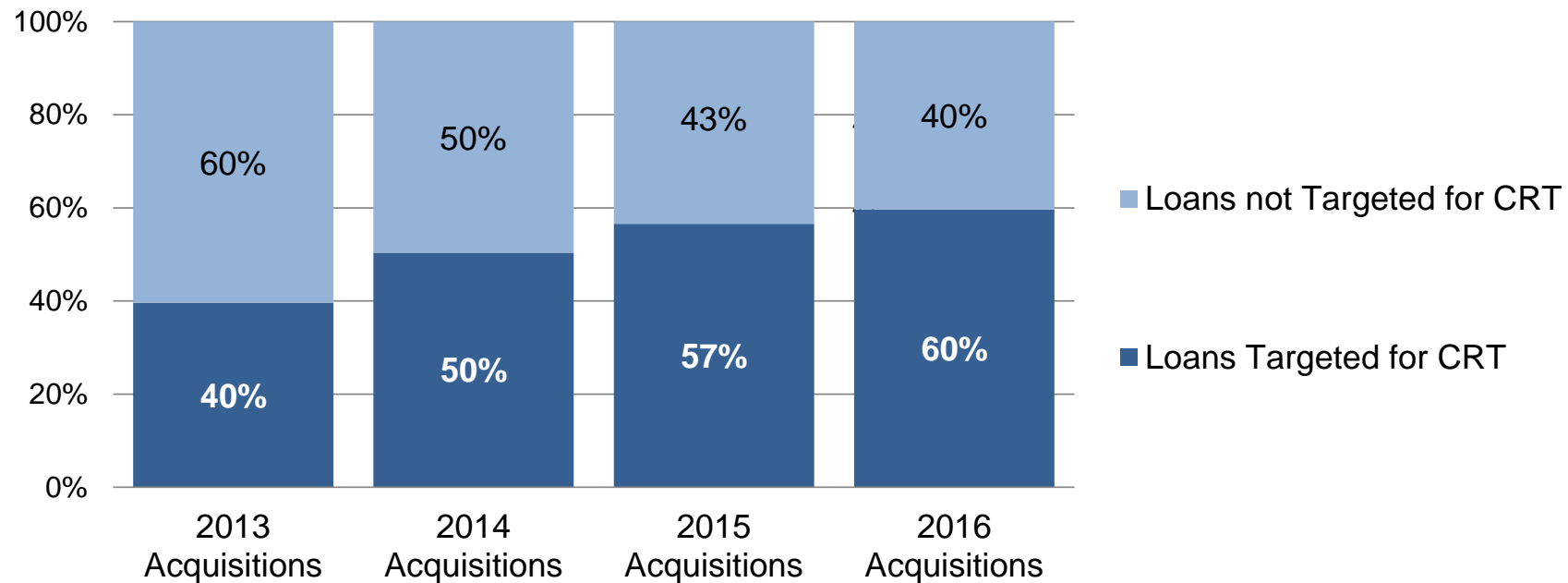
**Freddie Mac CRT Transaction Volume
2015 - Q1 2017**



Coverage of Single-Family Loan Acquisitions

Loans targeted for credit risk transfer represent about 60 percent of the Enterprises' single-family loan production for 2016. Targeted loans are single-family fixed-rate mortgages with 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.

Targeted Coverage of Loan Acquisitions



Estimating the market-implied guarantee fee

The Enterprises retain a fee from the payments received on mortgages as compensation for guaranteeing timely payment of principal and interest on the mortgage pass-through securities they issue. The guarantee fee covers two cost categories:

Non-credit costs include 1) the general and administrative expenses, 2) the statutory payroll tax, and 3) the residual risks that cannot be transferred through CRT transactions (e.g. operational risk, term risk and counterparty risk).

Non-credit costs range from 21 basis points for low LTV pools and 30 basis points for high LTV pools.

Non-credit Cost Components of the Guarantee Fee (bps)

	Low LTV	High LTV
General and administrative expense	7	7
Treasury Allocation (TCCA)	10	10
Residual risk	4	13
Total - Non-credit costs	21	30

Credit costs include 1) the expected costs that result from the failure of some borrowers to make their payments and 2) the cost of holding the modeled capital amount necessary to protect against potentially much larger unexpected and catastrophic losses that result from the failure of some borrowers to make their payments in a severe stress environment. The annual cost of holding capital to protect against unexpected losses is the amount of capital required multiplied by the target rate of return on that capital. Pricing of CRT transactions provides insight into investors' views of credit costs. This market implied credit cost for a particular tranche can be estimated as a function of:

- * Tranche size,
- * Credit spread paid to investors as compensation for bearing the risk, and
- * Weighted average life (WAL) of each tranche and the overall collateral pool.

Implied credit costs and implied guarantee fees based on Q1 2017 transactions are shown on the next two pages.



Estimating Implied Credit Costs and Guarantee Fees - Freddie Mac

Market pricing for Q1 2017 STACR transactions implies credit costs of 18 to 23 bps as shown below. Adding non-credit costs of 21 to 30 bps results in a range of market-implied guarantee fees of 39 to 53 bps.

Credit costs implied by STACR Bond pricing**Guarantee Fees Implied by STACR Bond Pricing**

STACR Tranche	2017 DNA-1		2017 HQA-1	
	Credit Spread to LIBOR (bps)	Implied Credit Cost (bps)	Credit Spread to LIBOR (bp)	Implied Credit Cost (bps)
M1	120	0.6	120	0.4
M2	325	6.7	355	9.7
B1	495	4.3	500	4.3
B2	1000	6.5	1275	8.2
Implied Credit Costs		18.1		22.7

	2017 DNA-1	2017 HQA-1
Non-credit Costs	21	30
Market implied credit cost	18	22.7
Market Implied Guarantee Fee	39	53

Methodology for calculating market-implied credit costs

The size of each tranche is publicly available, as are credit spreads associated with each tranche. Charts on the pages that follow show trends in the credit spreads for the mezzanine tranches. A simplified scenario is applied to calculate the WAL (i.e. 10 percent constant prepayment rate, 0.2 percent constant default rate, and 25 percent loss given default or loss severity). Individual analysts can leverage their own market assumptions or test a range of scenarios. The calculations assume that 100 percent of the notes are sold (no retention by the Enterprises). Research analysts have estimated that credit spreads on the B2 bond would increase by 100 to 300 bp if the entire position were sold.



Estimating Implied Credit Costs and Guarantee Fees - Fannie Mae

Market pricing for Q1 2017 CAS transactions implies credit costs of 21 to 22 bps as shown below. Adding non-credit costs of 21 to 30 bps results in a range of market-implied guarantee fees of 42 to 52 bps.

Credit costs implied by CAS Bond pricing**Guarantee Fees Implied by CAS Bond Pricing**

STACR Tranche	2017 DNA-1		2017 HQA-1	
	Credit Spread to LIBOR (bps)	Implied Credit Cost (bps)	Credit Spread to LIBOR (bp)	Implied Credit Cost (bps)
M1	130	0.5	115	0.3
M2	355	7.1	365	8.7
B1	575	5.0	550	4.8
B2	1300 ¹	8.0	1200 ¹	7.8
Implied Credit Costs		20.5		21.6

	2017 C01	2017 C02
Non-credit Costs	21	30.0
Market implied credit cost	21	22.0
Market Implied Guarantee Fee	42	52

Methodology for calculating market-implied credit costs

The size of each tranche is publicly available, as are credit spreads associated with each tranche. Charts on pages that follow show the trends in the credit spreads for the mezzanine tranches. A simplified scenario is applied to calculate the WAL (i.e. 10 percent constant prepayment rate, 0.2 percent constant default rate, and 25 percent loss given default or loss severity). Individual analysts can leverage their own market assumptions or test a range of scenarios. The calculations assume that 100 percent of the notes are sold (no retention by the Enterprises). Research analysts have estimated that credit spreads on the B2 bond would increase by 100 to 300 bp if the entire position were sold.

¹This spread reflects the indication price reported in the prospectus, as Fannie Mae retained the entire B2 bond.



Freddie Mac Implied Credit Costs and Guarantee Fees on STACR Transactions

Market pricing of CRT transactions provides insight to investors' views of credit costs.

Deal Name ¹	Date	Attach/Detach Points	Estimated Credit Cost ²	Estimated Guarantee Fee ³	Average Guarantee Fee ⁴
2015-DN1	02/03/15	0 / 450	30	51	57
2015-HQ1	03/31/15	0 / 650	40	70	57
2015-DNA2	06/29/15	0 / 550	29	50	57
2015-HQA1	09/28/15	0 / 595	32	62	57
2015-DNA3	11/09/15	0 / 585	33	54	57
2015-HQA2	12/08/15	0 / 640	37	67	57
2016-DNA1	01/01/16	0 / 500	34	55	59
2016-HQA1	03/15/16	0 / 550	43	73	59
2016-DNA2	05/10/16	0 / 500	33	54	59
2016-HQA2	06/01/16	0 / 550	36	66	59
2016-DNA3	06/14/16	0 / 500	34	55	59
2016-HQA3	09/16/16	0 / 550	27	57	59
2016-DNA4	09/30/16	0 / 500	26	47	59
2016-HQA4	10/25/16	0 / 550	27	57	59
2017-DNA1	02/07/17	0 / 375	18	39	59
2017-HQA1	02/22/17	0 / 425	23	53	59

¹ STACR 2015-DNA1 and 2015-HQ2 are removed from this analysis because of their seasoned collateral which dramatically reduces the implied cost.

² Estimated credit costs as of the date of bond issuance, based on a hypothetical baseline scenario: Constant Prepayment Rate (CPR) =10%, Constant Default Rate (CDR) = 0.2%, Loss Given Default (LGD) =25%, early redemption at 10-year maturity. The calculations assume that 100% of the STACR/CAS notes are sold (no retention by the Enterprises). Research analysts have estimated that credit spreads on the B-bond may increase by 100 – 300 bp if the entire position was sold.

³ Estimated Guarantee Fee includes:

Allocation to the U.S. Department of Treasury (TCCA) of 10 bps.

General and administrative expenses of 7 bps.

Residual risk of 13 bps on high LTV loans and 4 bps on low LTV loans.

Residual risk includes counterparty, term, and operational risk, excludes catastrophic risk.

³ Guarantee fees estimated only for transactions in which first loss bond is sold (attachment point at 0 bp)

⁴ Average guarantee fees are for combined Fannie Mae and Freddie Mac single-family loans acquired in a given calendar year as documented in: (https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/GFee_Report_FINAL.pdf). These numbers do not necessarily reflect the average guarantee fees associated with a particular reference pool.



Fannie Mae Implied Costs and Guarantee Fees on CAS Transactions

Market pricing of CRT transactions provides insight to investors' views of credit costs.

Deal Name	Date	Attach/Detach Points	Estimated Credit Cost ¹	Estimated Guarantee Fee ²	Average Guarantee Fee ³
2016-1 (1)	02/18/16	0 / 400	36	57	59
2016-1 (2)	02/18/16	100 / 400	19	NA	NA
2016-2	03/30/16	0 / 375	33	54	59
2016-3 (1)	04/21/16	0 / 400	31	52	59
2016-3 (2)	04/21/16	0 / 400	32	62	59
2016-4	06/28/16	0 / 400	27	48	59
2016-5	08/10/16	0 / 400	28	58	59
2016-6	11/09/16	0 / 400	25	46	59
2016-7	12/08/16	0 / 400	25	55	59
2017-C01	01/26/17	50 / 375	21	42	59
2017-C02	03/22/17	50 / 375	22	52	59

¹Estimated credit costs as of the date of bond issuance, based on a hypothetical baseline scenario: Constant Prepayment Rate (CPR) =10%, Constant Default Rate (CDR) = 0.2%, Loss Given Default (LGD) =25%, early redemption at 10-year maturity. The calculations assume that 100% of the STACR/CAS notes are sold (no retention by the Enterprises). Research analysts have estimated that credit spreads on the B-bond may increase by 100 – 300 bp if the entire position was sold.

²Estimated Guarantee Fee includes:

Allocation to the U.S. Department of Treasury (TCCA) of 10 bps.

General and administrative expenses of 7 bps.

Residual risk of 13 bps on high LTV loans and 4 bps on low LTV loans.

Residual risk includes counterparty, term, and operational risk, excludes catastrophic risk.

³ Average guarantee fees are for combined Fannie Mae and Freddie Mac single-family loans acquired in a given calendar year as documented in:

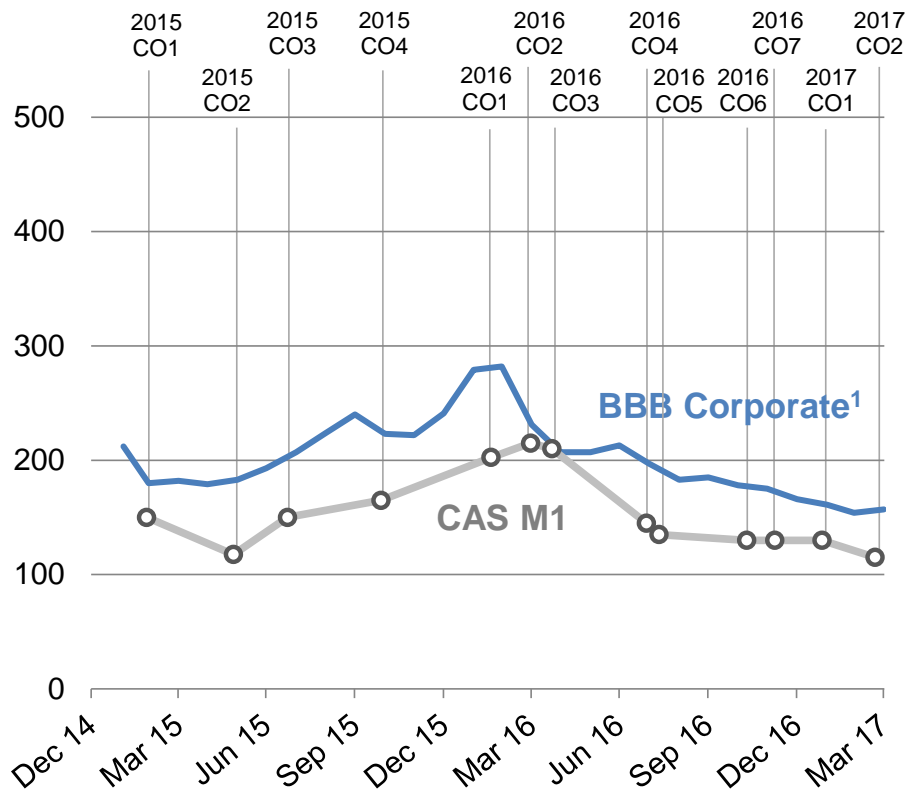
(https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/GFee_Report_FINAL.pdf). These numbers do not necessarily reflect the average guarantee fees associated with a particular reference pool.



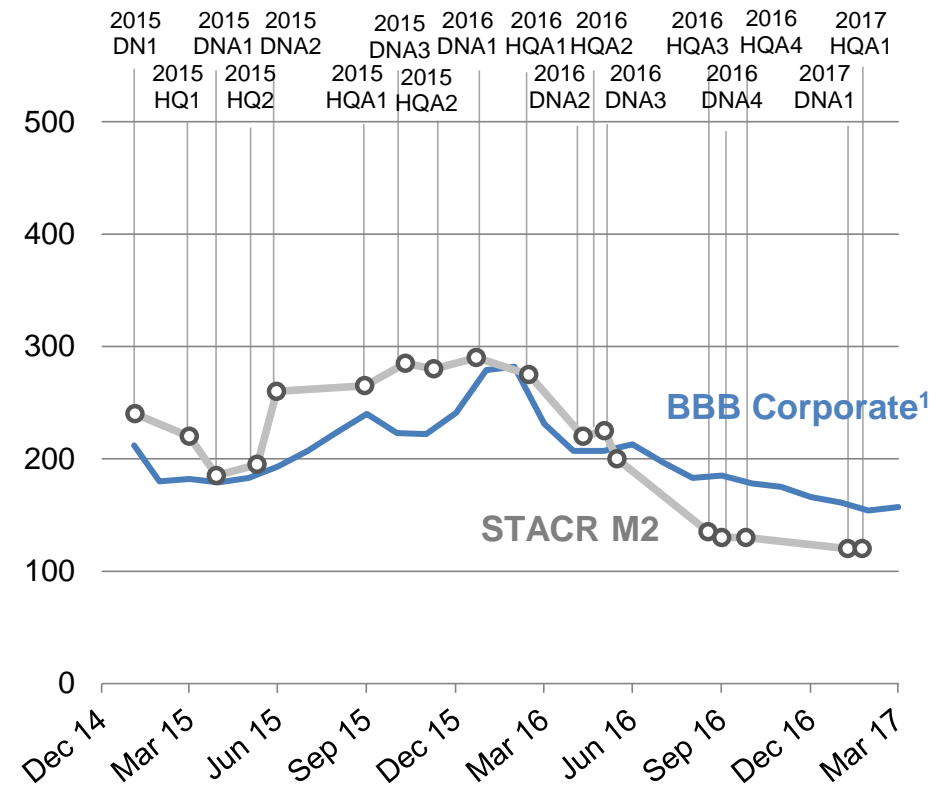
Comparison of CRT Market Pricing - Mezzanine Bonds to Corporate BBB Index

Credit spreads on the higher rated CRT mezzanine tranches performed similar to the corporate BBB index in Q1 2017, which continued the tightening trend that began in Q2 2016.

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



Freddie Mac STACR M2
Credit Spread at Issuance vs BBB Corporate Bond Index (bps)



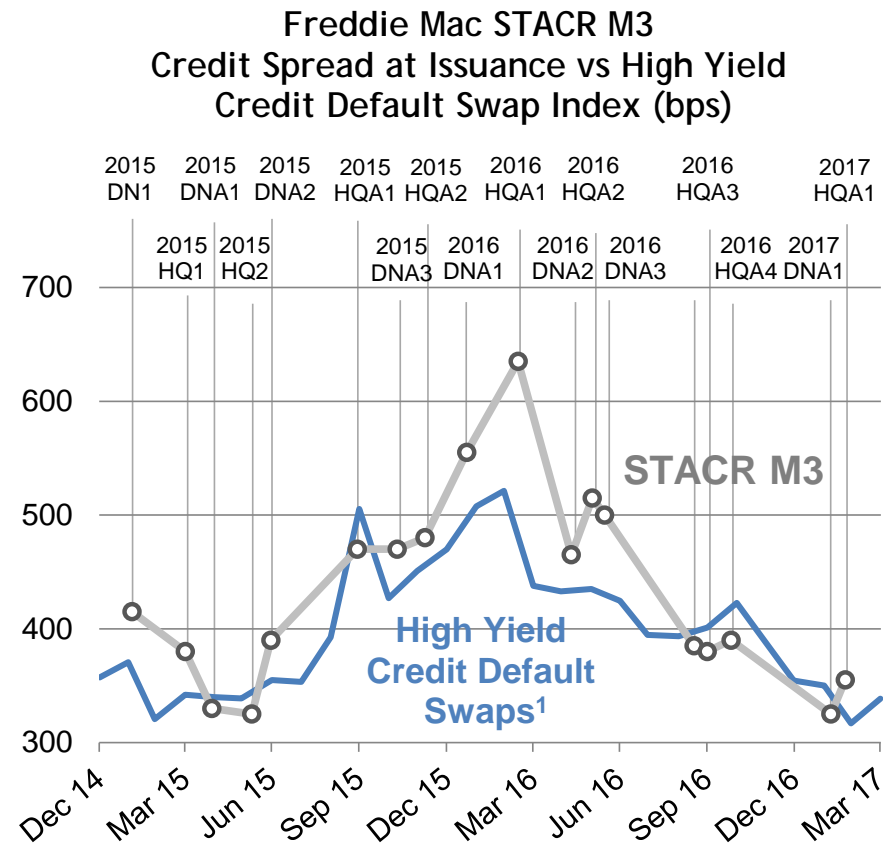
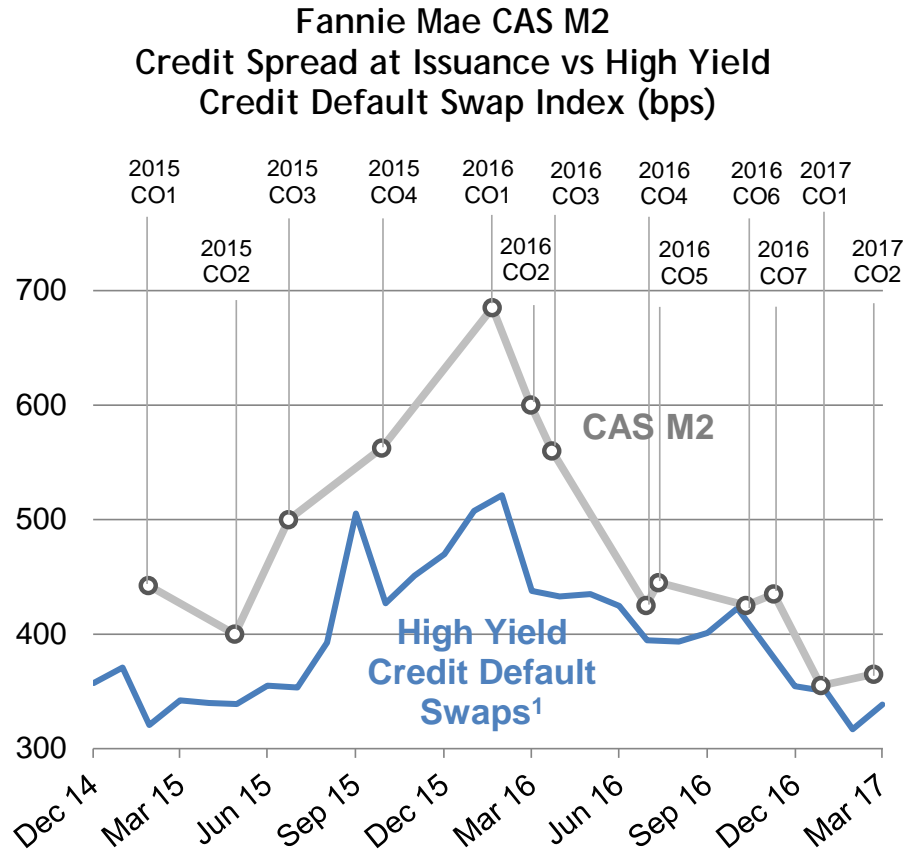
¹Bank of America Merrill Lynch US Corporate BBB Index

¹Bank of America Merrill Lynch US Corporate BBB Index



Comparison of CRT Market Pricing - Mezzanine Bonds to High Yield Credit Default Swaps

Credit spreads on the lower rated CRT mezzanine tranches performed similar to high yield index in Q1 2017, which continued the tightening trend that began in Q2 2016.



¹Markit CDX North American High Yield Index

¹Markit CDX North American High Yield Index



Appendix A: CRT Background

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 recourse agreement, or seller retained participation in the loan. This is

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.

a long-standing 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 Enterprises require coverage that 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 PMIs 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 made significant progress over the last four years toward fully integrating a credit risk transfer program into their



business models. They have increased the amount of credit risk transferred year-over-year, and they are now transferring credit risk on most higher risk new acquisitions for which credit risk transfer is economically reasonable.

The Enterprises have also worked to develop a portfolio of different transaction structures³, which include:

- Credit risk debt 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' debt 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 credit risk transfer structures.

Credit Risk Transfer Transaction Structures

STACR/CAS Transactions: To date, the STACR and CAS debt issuances have been the dominant transaction structure used under the Enterprises' credit risk transfer programs. STACR and CAS securities are issued as Enterprise debt and do not constitute the sale of mortgage loans. Instead, STACR and CAS are designed to track to the performance

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 <http://www.fhfa.gov/AboutUs/Reports/Pages/Overview-of-Fannie-Mae-and-Freddie-Mac-Credit-Risk-Transfer-Transactions-8212015.aspx>.

of a reference pool of mortgage loans that have been previously securitized into MBS guaranteed by the Enterprises and for which the Enterprises have assumed the credit risk.

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 debt securities. This means that the Enterprises essentially have no counterparty or reimbursement risk with this structure. Investors pay for STACR and CAS notes in full at the time of purchase and absorb applicable credit losses through a reduction in principal on the underlying notes.

As part of its STACR issuances in 2015, Freddie Mac began to transfer to investors a portion of the first losses on mortgage reference pools. Both Enterprises had previously retained the first losses on loans referenced in earlier debt issuances. Freddie Mac implemented this change for all of its 2015 STACR transactions, and Fannie Mae did so for CAS transactions starting in 2016. Beginning in 2017 the Enterprises have moved to generally retaining the first 0.50 percent B2 bond. This change is based on the economics of selling first loss.

Both Enterprises also changed the structure of their securities starting in 2015 to transfer credit risk based on actual credit loss amounts, rather than based on defined credit losses calculated by a formula as in prior transactions. That change was made possible by the release by both Enterprises of approximately 15 years of historical loan-level data on single-family mortgage credit actual losses.



Additional Credit Risk Transfer Structures

The Enterprises use other credit risk transfer structures in addition to the STACR/CAS structure. In 2016, these additional transaction types started to constitute a greater percentage of overall credit risk transfers.

Pursuing a broad portfolio of credit risk transfer transaction structures furthers FHFA's objective of having the Enterprises diversify their investor base for credit risk transfers and be able to compare execution across different structures and market environments. The Enterprises are currently pursuing 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 occurs with loan-level primary mortgage insurance, these pool-level policies cover a specified percentage of aggregate credit risk for a pool of hundreds or thousands of loans.

Through the CIRT and ACIS structures, the Enterprises are purchasing insurance primarily from diversified reinsurers. These transactions are partially collateralized and distributed among a variety of highly-rated insurers and reinsurers, 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. In the ACIS structure, which generally shares the same

⁴ Reinsurers are often characterized by diversified lines of business, which helps mitigate the risk that the Enterprises' counterparties are correlated to the housing market stress and would have increased claims at exactly the same time the Enterprise themselves are under stress.

reference pool as STACR, Freddie Mac allocates sales between capital markets and reinsurance investors. In contrast, Fannie Mae establishes separate reference pools for CAS and CIRT transactions.

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 senior/subordinate transactions are typically 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.

Freddie Mac's version of the senior/subordinate program for its single-family program, called Whole Loan Securities (WLS), is modeled after the multifamily K-deal transactions. Fannie Mae has previously done a version of the senior/subordinate program for its single-family program called Wisconsin Avenue Securities (WAS) and may do so in the future. Currently, only Freddie Mac issues senior/subordinate structures.

Front-End Credit Risk Transfer Transactions: Front-end risk transfer transactions are structured so that risk is transferred prior to, or simultaneous with, Enterprise loan acquisition. These transactions may be issued as 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. To date, lender



front-end risk sharing has been the primary form of front-end risk transfer. Fannie Mae's structured security version of front-end risk transfer with lenders is called L Street Securities (LSS). To date, both agencies have issued structured securities for lender specific risk transfers. Both Enterprises are making progress in their efforts to expand the front-end risk transfer approach to the private mortgage insurance and reinsurance industries. Each issued a front-end structure with reinsurer affiliates of the mortgage insurance industry in 2016, and Fannie Mae issued a larger 12-month forward structure with traditional reinsurers in Q1 2017.

Compensation paid to the lenders for the protection they provide on front-end transactions is based solely on economic considerations and not on the overall amount of loans the lenders sell to the Enterprises. 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.

Multifamily Credit Risk Transfer Transactions: Risk sharing with the private sector is an integral part of the multifamily business model for both Enterprises. Freddie Mac issues senior/subordinate notes to finance most of its multifamily originations, primarily through its K-deal structure. In these transactions, virtually all credit risk is transferred to investors through subordinated bonds that are structured to absorb expected and unexpected risk. Freddie Mac also launched a new structured product (SCR notes) to transfer credit risk on certain multifamily mortgage loans backing targeted affordable rental housing tax-exempt bonds guaranteed by Freddie Mac.

In Fannie Mae's multifamily program (known as DUS), 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. Aside from their

DUS transactions, Fannie Mae completed an additional multifamily CRT transaction during 2016. For this transaction, Fannie Mae transferred a portion of the risk to the reinsurance industry. This was the first non-DUS CRT transaction for Fannie Mae involving multifamily mortgage loans.



Appendix B: 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: Whenever practical, parties to a transaction should provide public disclosure of transaction information.

Level playing field: Credit risk transfer transactions should only reflect the cost of transferring credit risk and 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, typically a 10- to 12-year time period. 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: In the case of the Enterprise, 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.



Appendix C: CRT Transaction Types, Arrangement, and Risk

CRT Types, Arrangement, and Risk

Risk Transfer Type	Front-end or Back-end Arrangement ¹	Level of Reimbursement Risk
Debt Issuance (STACR/CAS)	Back-end	Low, fully collateralized
Credit linked notes	Back-end	Low, fully collateralized
Pool level insurance/reinsurance (CIRT/ACIS)	Back-end	Medium, partially collateralized
Additional loan level insurance (deeper MI)	Front-end	Medium, under evaluation for the adequacy of PMIERS, MI ratings, and the use of collateralization
Lender risk sharing transactions (collateralized recourse)	Front-end	Low, if fully collateralized, or Medium, if partially collateralized
Senior-sub (WAS/WLS)	Back-end	Low, fully collateralized

¹ Front-end lender risk sharing transactions include various methods of credit risk transfer where an originating lender or aggregator retains a portion of the credit risk associated with the loans they sell to the Enterprises. In this case, the credit risk sharing agreement is entered into prior to the lender delivering the loans to the Enterprise. Note that over time, as the market develops, some back-end arrangements may potentially evolve to front-end (i.e., become simultaneous with loan acquisition).

