



CREDIT RISK TRANSFER PROGRESS REPORT

December 2016

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Overview of the Program

In 2012, the Federal Housing Finance Agency (FHFA) initiated development of a credit risk transfer program intended to reduce Fannie Mae's and Freddie Mac's (the Enterprises') overall risk and, therefore, the risk they pose to taxpayers while in conservatorship. Fannie Mae and Freddie Mac implemented their credit risk transfer 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 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 the scope of their credit risk transfer programs as part of their efforts to further reduce credit risk where economically sensible.

From the beginning of the Enterprises' Single-Family Credit Risk Transfer (CRT) programs in 2013 through December 2016, Fannie Mae and Freddie Mac have transferred a portion of credit risk on \$1.4 trillion of unpaid principal balance (UPB), with a combined Risk in Force (RIF)¹ of about \$49 billion, or 3.4 percent of UPB. An additional \$731 billion of UPB and \$186 billion of RIF has been transferred to primary mortgage insurers from 2013 through 2016. Through CRT and mortgage insurance, the majority of the underlying mortgage credit risk on mortgages targeted for CRT has been transferred to private investors.

2016 Highlights

The Enterprises transferred a portion of credit risk on \$548 billion of UPB in 2016, with RIF of about \$18 billion. Of this amount, the portion of RIF transferred through debt issuances (STACR/CAS) was about 72 percent, through transactions with insurers and reinsurers was about 25 percent, and through front-end transactions – including both lender collateralized recourse transactions and front-end pilots with mortgage insurer affiliates – was about 4 percent. Both Enterprises also issued credit risk transfer transactions backed by loans with 15-year terms for the first time in 2016. The Enterprises continue to explore additional credit risk transfer structures that reduce risk to the taxpayer, are economically reasonable, and meet other FHFA credit risk transfer principles described on page 22.

Freddie Mac began selling a portion of the first dollar of expected credit losses in 2015 and continued to do so in 2016. Fannie Mae began selling a portion of the first dollar of expected credit losses in 2016. Feedback obtained by selling a portion of the initial losses, both from credit risk investors and from pricing of so-called first-loss bonds, has provided important information to FHFA and the Enterprises. As the Enterprises' credit risk transfer programs continue to evolve, FHFA and the Enterprises will take that information into account in considering the structure of future credit risk transfer transactions.

¹ RIF represents the maximum loss exposure that could be absorbed by CRT investors.

² 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.

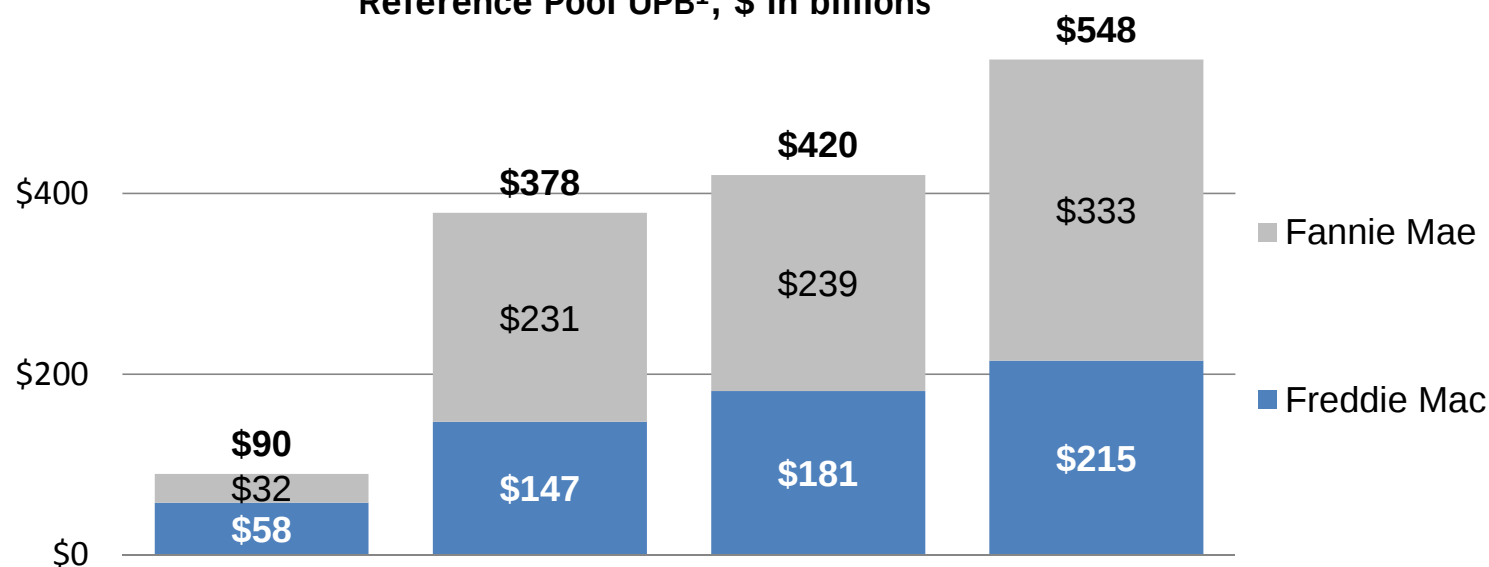


Single-Family CRT Activity for Fannie Mae and Freddie Mac

From the beginning of the Enterprises' CRT programs in 2013 through December 2016, Fannie Mae and Freddie Mac have transferred a portion of credit risk on \$1.4 trillion of UPB of single-family mortgages, with a combined RIF of about \$49 billion, or 3.4 percent of UPB.

Enterprise Single-Family Mortgage CRT Activity, 2013-2016

Reference Pool UPB¹, \$ in billions



	2013	2014	2015	2016	Total
Fannie Mae	\$31.9	\$230.9	\$239.1	\$332.9	\$834.9
Freddie Mac	\$57.9	\$147.5	\$181.3	\$215.0	\$601.7
Total		\$378.4	\$420.4	\$548.0	\$1,436.6

Note Size or Liability², \$ in billions

Fannie Mae	\$0.8	\$6.1	\$7.3	\$9.8	\$23.9
Freddie Mac	\$1.5	\$6.1	\$8.8	\$8.4	\$24.7
Total	\$2.2	\$12.2	\$16.1	\$18.1	\$48.7

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

² Note size represents total credit risk transfer coverage and is equivalent to RIF.



2016 CRT Activity

In 2016, the Enterprises transferred about \$18 billion of RIF on \$548 billion reference pool UPB. In 2016, the portion of RIF transferred through debt issuances was about 72 percent, the reinsurance industry accounted for about 25 percent, lender collateralized recourse transactions represented 3 percent, and front-end pilots represented 1 percent of RIF.

**Credit Risk Transfer Volume¹
as of December 2016**

	Fannie Mae			Freddie Mac			Total		
\$ in millions	Reference Pool UPB ²	RIF	Percent of RIF	Reference Pool UPB ²	RIF	Percent of RIF	Reference Pool UPB ²	RIF	Percent of RIF
Debt Issuances	239,602	7,393	76%	183,101	5,541	66%	422,703	12,934	72%
Reinsurance	73,767	1,757	18%	26,991	2,670 ³	32%	100,758	4,427	25%
Lender Recourse	15,874	528	5%	939	50	1%	16,813	578	3%
Front-End Pilots	3,700	98	1%	4,000	100	1%	7,700	198	1%
Total	332,942	9,776		215,031	8,362		547,973	17,940	

¹ The same reference pool backs STACR and ACIS transactions; CAS and CIRT are backed by separate reference pools.

² Reference pool UPB at issuance.

³ Freddie Mac issued two stand-alone ACIS transactions backed by 15-year collateral. See page 10.



The Role of Primary Mortgage Insurance in CRT Transactions

From the beginning of Fannie Mae and Freddie Mac's CRT programs in 2013 through December 2016, the Enterprises have transferred a portion of credit risk on about \$1.4 trillion in single-family loans through CRT.

Between 25 - 30 percent of the Enterprises' CRT debt issuances (STACR/CAS) have been backed by loans with 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 table on the right shows the total risk in force, measured at the time of Enterprise acquisition for each loan, with PMI acquired by the Enterprises for each year between 2013 and 2016. 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 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.

Primary Mortgage Insurance Coverage for New Acquisitions by Acquisition Year

Year	Enterprise	RIF ¹	UPB ¹
2013	Fannie Mae	27.3	108.9
	Freddie Mac	12.6	48.1
	Total	39.9	157.0
2014	Fannie Mae	23.2	92.1
	Freddie Mac	14.5	54.2
	Total	37.7	148.8
2015	Fannie Mae	30.2	120.3
	Freddie Mac	18.5	71.5
	Total	48.7	191.8
2016	Fannie Mae	36.1	145.5
	Freddie Mac	23.1	90.5
	Total	59.2	236.0
Total	Fannie Mae	116.8	466.8
	Freddie Mac	68.7	264.3
	Total	185.5	731.1

¹In 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 Debt Issuances

Investors in CRT debt issuances are responsible for losses in a range defined by the attachment point and detachment point. Prior to 2016, the attachment point on Fannie Mae's CAS transactions was 30 basis points or higher. In 2016, Fannie Mae issued CAS transactions where a portion of the first dollar loss exposure was transferred to investors with an attachment point of zero.

Fannie Mae CRT Transactions -- Connecticut Avenue Securities (CAS)¹

Deal Type	Deal Name ²	Date	Reference Pool UPB ³ (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ⁴ or RIF (in millions of \$)	Retained portion of tranches (in millions of \$)
CAS	2013-1	10/24/13	26,756	30 / 300	675	128
CAS	2014-1	01/27/14	29,309	30 / 300	750	129
CAS	2014-2 (1)	05/28/14	46,843	30 / 300	1,200	205
CAS	2014-2 (2)	05/28/14	13,975	65 / 375	400	124
CAS	2014-3 (1)	07/25/14	59,214	30 / 300	1,500	276
CAS	2014-3 (2)	07/25/14	19,010	65 / 375	550	163
CAS	2014-4 (1)	11/25/14	35,846	30 / 300	919	156
CAS	2014-4 (2)	11/25/14	18,027	65 / 375	530	146
CAS	2015-1 (1)	02/26/15	31,389	40 / 350	924	175
CAS	2015-1 (2)	02/26/15	18,804	70 / 375	545	160
CAS	2015-2 (1)	05/27/15	28,002	40 / 375	891	159
CAS	2015-2 (2)	05/27/15	17,007	80 / 425	557	166
CAS	2015-3 (1)	07/22/15	28,252	40 / 375	899	160
CAS	2015-3 (2)	07/22/15	20,074	80 / 425	658	195
CAS	2015-4 (1)	10/27/15	26,876	50 / 400	894	181
CAS	2015-4 (2)	10/27/15	18,169	80 / 400	552	174
CAS	2016-1 (1)	02/18/16	19,000	0 / 400	636	124
CAS	2016-1 (2)	02/18/16	10,828	100 / 400	309	124
CAS	2016-2	03/30/16	36,035	0 / 375	1,032	320
CAS		04/21/16	11,862	0 / 400	397	77
CAS	2016-3 (2)	04/21/16	25,391	0 / 400	769	247
CAS	2016-4	06/28/16	42,179	0 / 400	1,322	365
CAS	2016-5	08/10/16	38,668	0 / 400	1,202	345
CAS	2016-6	11/09/16	33,124	0 / 400	1,024	301
CAS	2016-7	12/08/16	22,515	0 / 400	702	199
Total 2015			188,573		5,920	1,371
Total 2016			239,602		7,393	2,102
Total CAS Transactions			677,155		19,837	4,801

¹ See page 19 for a description of these transactions.

² Portion of deal marked "(1)" refers to Loan Group 1, consisting of 60.01-80% LTV loans. Portion marked "(2)" refers to loan group 2, consisting of loans with LTV greater than 80%.

³ The UPB shown in the table is 100 percent of the associated reference pool at issuance.

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



Fannie Mae Insurance/Reinsurance Transactions

Fannie Mae transferred almost \$1.8 billion of RIF through its credit insurance/reinsurance program – which involves transactions referred to as CIRT – in 2016, an increase from \$1.0 billion in 2015.

Fannie Mae CRT Transactions -- Credit Insurance Risk Transfer (CIRT)¹

Deal Type	Deal Name	Date	Reference Pool UPB ² (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ³ or RIF (in millions of \$)
MIRT ⁴	2013-1	09/01/13	5,172	20 / 200	93
CIRT	2014-1	11/01/14	6,419	50 / 350	193
CIRT	2015-1	06/01/15	4,676	50 / 300	117
CIRT	2015-2	07/01/15	8,101	50 / 300	203
CIRT	2015-3	08/01/15	7,048	50 / 300	176
CIRT	2015-4	10/01/15	7,400	50 / 300	185
CIRT	2015-5	10/01/15	4,860	50 / 300	121
CIRT	2015-6	11/01/15	8,229	50 / 300	206
CIRT	2016-1	02/01/16	8,800	50 / 300	220
CIRT	2016-2	02/01/16	10,673	50 / 300	267
CIRT	2016-3	03/01/16	5,694	50 / 300	142
CIRT	2016-4	05/01/16	9,720	50 / 300	243
CIRT	2016-5	05/01/16	9,027	50 / 300	226
CIRT	2016-6	05/01/16	3,760	50 / 300	94
CIRT	2016-7	08/01/16	10,383	50 / 300	260
CIRT	2016-8	08/01/16	4,000	50 / 300	100
CIRT ⁵	2016-9	10/01/16	11,710	35 / 210	205
Total 2015			40,314		1,008
Total 2016			73,767		1,757
Total Reinsurance Transactions			125,671		3,050

¹ See page 20 for a description of these transactions.

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

³ Note size represents total risk transfer coverage and is equivalent to RIF.

⁴ Mortgage Insurance Risk Transfer.

⁵ CIRT 2016-9 covered \$11.7 B of 15-year and 20-year mortgages.



Fannie Mae Front-End Transactions

Fannie Mae transferred risk on \$19.6 billion of UPB in front-end CRT transactions in 2016. Lender collateralized recourse transactions, where lenders retain a portion of the credit risk on loans as they originate and deliver them to Fannie Mae, accounted for \$15.9 billion in 2016. Fannie Mae also executed one front-end CRT pilot with affiliates of mortgage insurance companies.

Fannie Mae CRT Transactions -- Front-End¹

Deal Type	Date	Reference Pool UPB ² (in millions of \$)	Sold portion of tranches:
			Note size ³ or RIF (in millions of \$)
Lender Collateralized Recourse	Prior to 2015	2,281	63
Lender Collateralized Recourse	Total 2015	10,179	372
Lender Collateralized Recourse	Total 2016	15,874	528
Front-End Pilots	Total 2016	3,700	98
Total Front-End Transactions		32,034	1,061

¹ See page 20 for a description of this transaction.

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

³ Note size represents total risk transfer coverage and is equivalent to RIF.



Freddie Mac Debt Issuances and Insurance/Reinsurance Transactions

In most cases, Freddie Mac uses the same reference pool for debt issuances (STACR) and insurance/reinsurance transactions (ACIS), and both are presented below. Freddie Mac transferred a greater share of credit risk to the reinsurance industry in 2016 than in previous years.

Freddie Mac CRT Transactions

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 \$)	Retained (in millions of \$)
STACR	2013-DN1	07/26/13	22,587	30 / 300	500	77	101
STACR	2013-DN2	11/12/13	35,327	30 / 300	630	269	161
STACR	2014-DN1	02/12/14	32,441	30 / 450	1,008	284	168
STACR	2014-DN2	04/09/14	28,147	30 / 450	966	155	146
STACR	2014-DN3	08/11/14	19,746	40 / 460	672	115	121
STACR	2014-HQ1	08/11/14	9,974	75 / 650	460	0	188
STACR	2014-HQ2	09/15/14	33,434	60 / 610	770	500	344 ⁵
STACR	2014-DN4	10/28/14	15,741	50 / 520	611	92	116
STACR	2014-HQ3	10/28/14	8,001	85 / 650	429	0	91
STACR	2015-DN1	02/03/15	27,644	0 / 450	880	173	188
STACR	2015-HQ1	03/31/15	16,552	0 / 650	860	50	166
STACR	2015-DNA1	04/28/15	31,876	0 / 425	1,010	133	212
STACR	2015-HQ2	06/09/15	n/a ⁶	0 / 560	426	0	n/a ⁷
STACR	2015-DNA2	06/29/15	31,985	0 / 550	950	503	306
STACR	2015-HQA1	09/28/15	19,377	0 / 595	872	136	145
STACR	2015-DNA3	11/09/15	34,706	0 / 585	1,070	702	258
STACR	2015-HQA2	12/08/15	17,104	0 / 640	590	373	132
STACR	2016-DNA1	01/21/16	35,724	0 / 500	996	451	339
STACR	2016-HQA1	03/15/16	17,931	0 / 550	475	336	175
STACR	2016-DNA2	05/10/16	30,121	0 / 500	916	303	287
STACR	2016-HQA2	06/01/16	18,455	0 / 550	627	208	180
STACR	2016-DNA3	06/14/16	26,468	0 / 500	795	277	251
STACR	2016-HQA3	09/16/16	15,709	0 / 550	515	195	154
STACR	2016-DNA4	09/30/16	24,845	0 / 500	739	266	237
STACR		10/25/16	13,847	0 / 550	478	148	136
Total 2015			179,244		6,658	2,070	1,407
Total 2016			183,101		5,541	2,184	1,760
Total STACR Transactions			567,742		18,245	5,746	4,258

¹ See page 19 for a description of this transaction.

² See page 20 for a description of this transaction.

³ The UPB shown in the table is 100 percent of the associated reference pool at time of issuance.

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

⁵ Original retained amount at transaction date was \$770 million. Retained amount shown has been reduced by the additional bond issuance on the reference pool for STACR 2015-HQ2.

⁶ This transaction used the same reference pool as STACR 2014-HQ2.

⁷ Retained amount is reflected in STACR 2014-HQ2 because STACR 2014-HQ2 and STACR 2015-HQ2 were issued on the same reference pool.



Freddie Mac Additional Insurance/Reinsurance, Senior-Subordinate, and Front-End Transactions

In 2016, Freddie Mac issued two stand alone ACIS deals backed by reference pools of \$27 billion in UPB of 15-year mortgages. Whole Loan Securities (WLS) issuances, which are senior-subordinate transaction structures, and front-end transactions comprised about 2 percent of Freddie Mac's total CRT reference pool UPB. Lender collateralized recourse transactions accounted for \$0.1 billion in 2016. Freddie Mac also executed one front-end CRT pilot with affiliates of mortgage insurance companies.

Freddie Mac CRT Transactions -- Agency Credit Insurance Structure (ACIS)¹

Deal Type	Deal Name	Date	Reference Pool UPB ² (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ³ or RIF (in millions of \$)
ACIS	2016-3	04/25/16	11,187	15 / 215	201
ACIS	2016-10	11/1/16	15,804	15 / 215	285
Total ACIS Transactions			26,991		486

Freddie Mac CRT Transactions -- Front-End¹

Deal Type		Reference Pool UPB ² (in millions of \$)	Sold portion of tranches: Note size ³ or RIF (in millions of \$)
Lender Collateralized Recourse	Total 2015	1,108	11
Lender Collateralized Recourse	Total 2016	131	1
Front-End Pilots	Total 2016	4,000	100
Total Front-End Transactions		5,239	112

Freddie Mac CRT Transactions -- WLS¹

Deal Type	Deal Name	Date	Reference Pool UPB ² (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ³ or RIF (in millions of \$)
WLS	2015-SC01	07/30/15	300	0 / 750	23
WLS	2015-SC02	11/23/15	635	0 / 650	41
WLS	2016-SC01	07/26/16	348	0 / 600	21
WLS	2016-SC02	11/21/16	460	0 / 600	28
Total WLS Transactions			1,743		113

¹ See pages 20 for a description of these transactions.

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

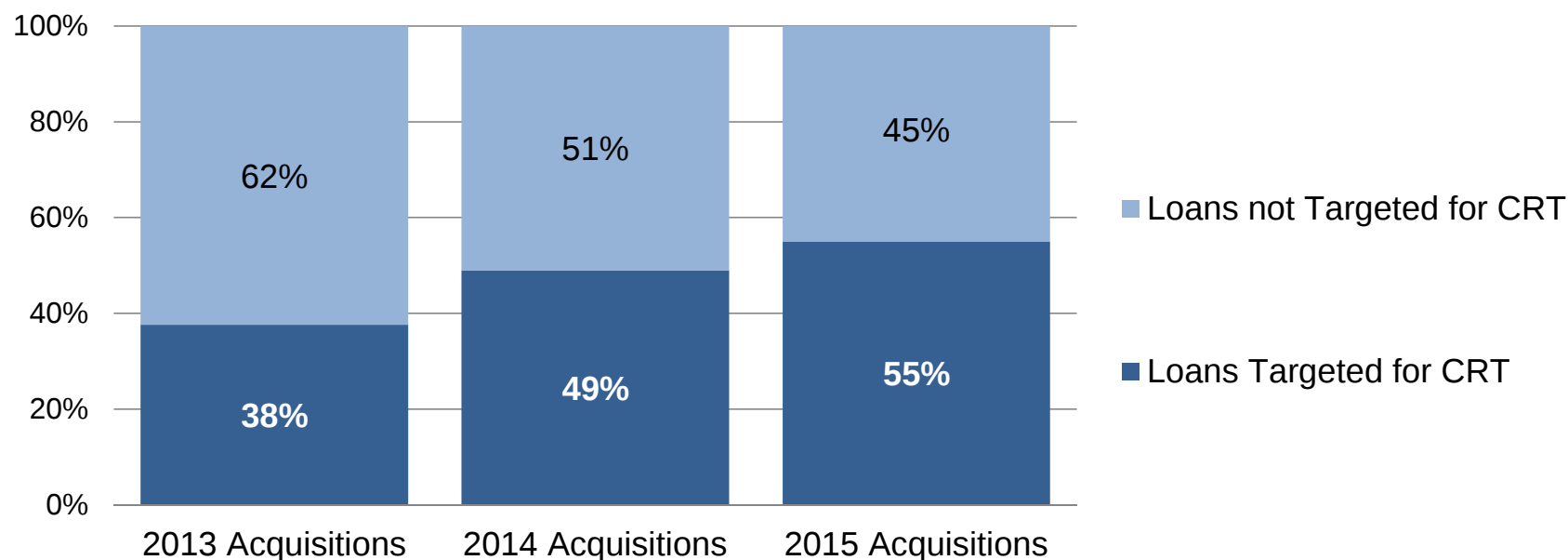
³ Note size represents total risk transfer coverage and is equivalent to RIF.



Coverage of Single-Family Loan Acquisitions

Loans targeted for credit risk transfer represent about 55 percent of the Enterprises' single-family loan production. Targeted loans are single family fixed rate mortgages with LTVs $\Rightarrow$ 60% and original term greater than 20 years excluding HARP/Freddie Mac Relief Refinance/Fannie Mae Refi Plus loans and other minimal exclusions. For loans acquired through December 2015, Fannie Mae and Freddie Mac transferred credit risk on over 90 percent of targeted single-family loans. Because of the lag time between the loan acquisition and CRT issuance most of 2016 CRT transactions were backed by loans acquired by the Enterprises in 2015.

Targeted Coverage of Loan Acquisitions¹



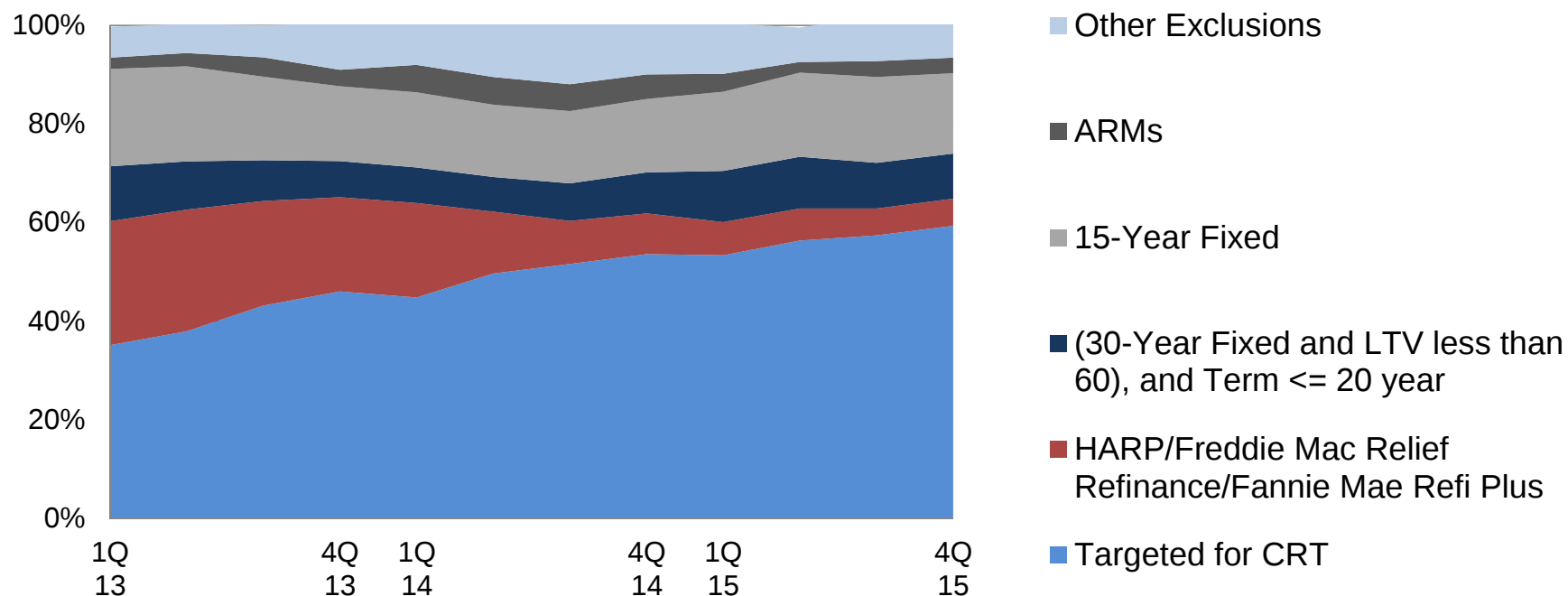
¹ Includes loans targeted in CAS, STACR, and reinsurance transactions.



Targeted Loan Categories

The Enterprises focus their single-family CRT programs on the following new acquisition loan categories which represent the majority of the Enterprises' underlying credit risk: single-family loans with LTV $\geq$ 60 percent and original terms greater than 20 year. As reflected in the chart below, the loan categories targeted for CRT have grown since 2013. Low-risk mortgages (30-year mortgages with LTVs less than 60 percent and 15 year mortgages) comprise a large majority of loans not targeted for CRT.

Loan Acquisitions — Targeted and Non Targeted Loans¹



¹ Includes loans targeted in CAS, STACR, and reinsurance transactions. Targeted loans are single family fixed rate mortgages with LTV $\geq$ 60% and original term greater than 20 years. HARP loans/Freddie Mac Relief Refinance/Fannie Mae Refi Plus are excluded from the target population. Other minimal exclusions apply.



Fannie Mae Estimated Credit Costs & Guarantee Fees of CAS Transactions

The estimated credit cost of CAS issuances increased in 2016 because Fannie Mae sold the first loss position to investors (reflected by attachment points of zero). The estimated credit cost for these transactions would be approximately flat if prior transactions included a comparable sale of first loss positions.

Estimated Credit Cost for CAS Transactions

Deal Name	Attach/Detach Date	Estimated Credit Points	Estimated Credit Cost ¹	Estimated Guarantee Fee ^{2,3}	Average Guarantee Fee ⁴
2013-1	10/24/13	30 / 300	12	NA	NA
2014-1	01/27/14	30 / 300	10	NA	NA
2014-2 (1)	05/28/14	30 / 300	6	NA	NA
2014-2 (2)	05/28/14	65 / 375	6	NA	NA
2014-3 (1)	07/25/14	30 / 300	7	NA	NA
2014-3 (2)	07/25/14	65 / 375	7	NA	NA
2014-4 (1)	11/25/14	30 / 300	12	NA	NA
2014-4 (2)	11/25/14	65 / 375	13	NA	NA
2015-1 (1)	02/26/15	40 / 350	11	NA	NA
2015-1 (2)	02/26/15	70 / 375	11	NA	NA
2015-2 (1)	05/27/15	40 / 375	13	NA	NA
2015-2 (2)	05/27/15	80 / 425	12	NA	NA
2015-3 (1)	07/22/15	40 / 375	17	NA	NA
2015-3 (2)	07/22/15	80 / 425	15	NA	NA
2015-4 (1)	10/27/15	50 / 400	23	NA	NA
2015-4 (2)	10/27/15	80 / 400	21	NA	NA
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		46	59
2016-7	12/08/16	0 / 400	25	55	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 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.



Freddie Mac Estimated Credit Costs & Guarantee Fees of STACR Transactions

Estimated credit costs for STACR increased modestly over the first half of 2016 primarily due to widening spreads in the credit markets, but then moderated as credit spreads approached prior levels in the second half of 2016.

Estimated Credit Cost for STACR Transactions¹

Deal Name	Attach/Detach Date	Points	Estimated Credit Cost ²	Estimated Guarantee Fee ³	Average Guarantee Fee ⁴
2013-DN1	07/26/13	30 / 300	17	NA	NA
2013-DN2	11/12/13	30 / 300	10	NA	NA
2014-DN1	02/12/14	30 / 450	17	NA	NA
2014-DN2	04/09/14	30 / 450	13	NA	NA
2014-DN3	08/11/14	40 / 460	16	NA	NA
2014-HQ1	08/11/14	75 / 650	19	NA	NA
2014-HQ2	09/15/14	60 / 610	16	NA	NA
2014-DN4	10/28/14	50 / 520	20	NA	NA
2014-HQ3	10/28/14	85 / 650	22	NA	NA
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

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)

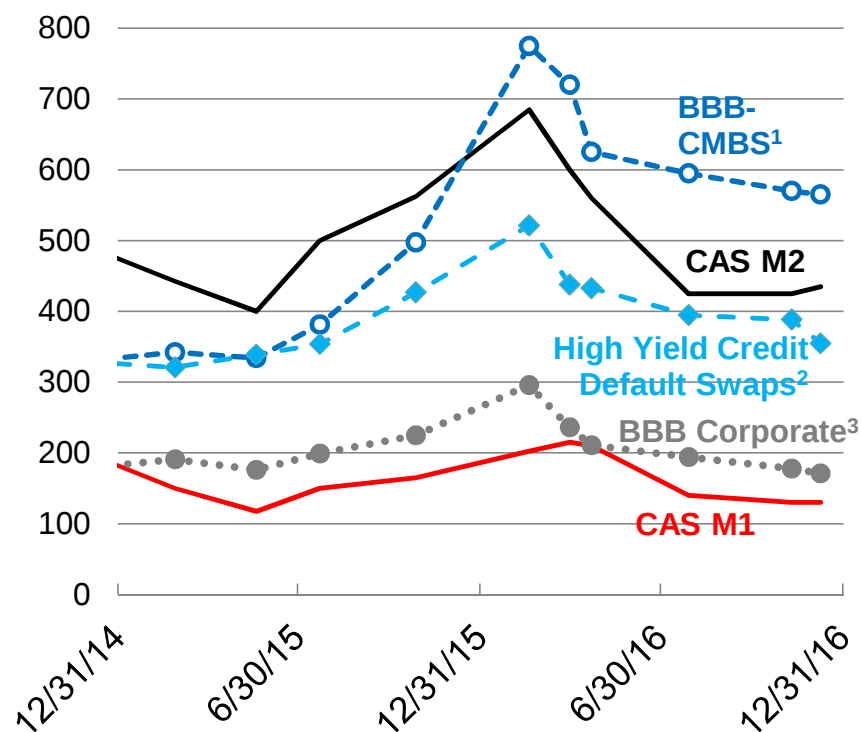
⁴ Average guarantee fees are for combined Fannie Mae and Freddie Mac single-family loans acquired in a given calendar year as documented in: (https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/GFee_Report_FINAL.pdf). These numbers do not necessarily reflect the average guarantee fees associated with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



Credit Spreads and CRT Costs

Spreads widened across all credit markets during the first quarter of 2016, which increased the cost of CRT transactions, but spreads moderated through the remainder of 2016. CRT credit spreads performed similar to other BBB credit spreads and slightly outperformed BBB-CMBS in 2016.

Fannie Mae CAS
Credit Spread to LIBOR (bps)

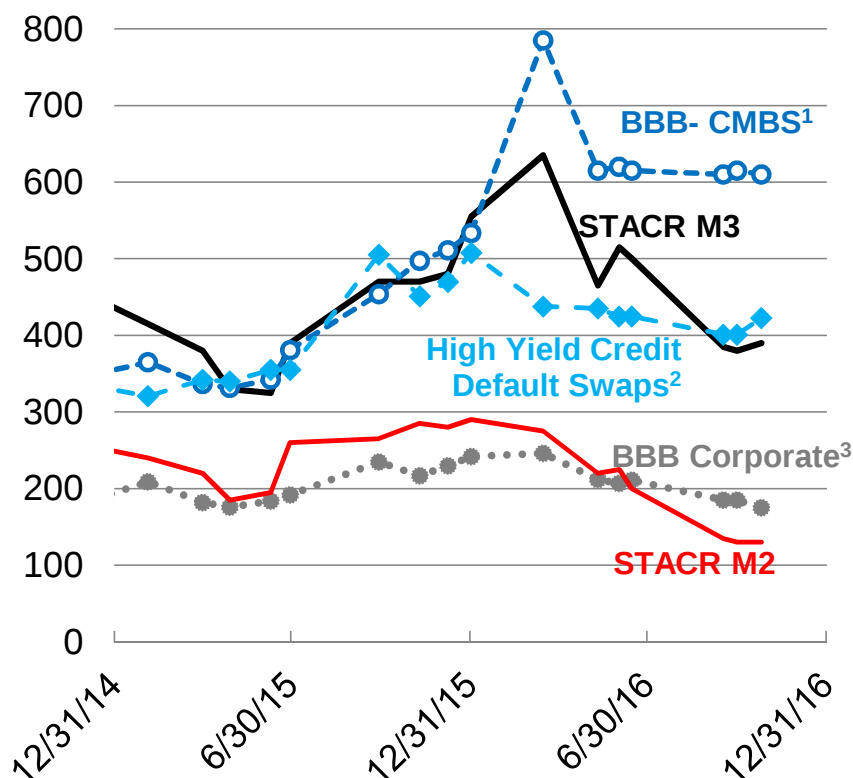


¹Bloomberg BBB- CMBS Index

²Markit CDX North American High Yield Index

³Bank of America Merrill Lynch US Corporate BBB Index

Freddie Mac STACR
Credit Spread to LIBOR (bps)



¹Bloomberg BBB- CMBS Index

²Markit CDX North American High Yield Index

³Bank of America Merrill Lynch US Corporate BBB Index



Fannie Mae Multifamily CRT Activity

Risk sharing with the private sector is an integral part of the multifamily business model of Fannie Mae.

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. Fannie Mae acquired \$55 billion of its multifamily production through the DUS risk sharing program in 2016. In addition to its DUS transactions, Fannie Mae also completed a multifamily CRT transaction during 2016. For this transaction, CIRT-2016-M01, Fannie Mae transferred a portion of the credit risk on approximately \$9.4 billion of loans to the reinsurance industry. This was the first non-DUS CRT transaction for Fannie Mae involving multifamily mortgage loans.

Fannie Mae CRT Transactions — Multifamily

Deal Type	Deal Name	Date	Reference Pool UPB ¹ (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ² or RIF (in millions of \$)
CIRT	2016-M01	6/1/16	9,401	133 / 250	110

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

² Note size represents total risk transfer coverage and is equivalent to RIF.



Freddie Mac Multifamily CRT Activity

Risk sharing with the private sector is also an integral part of the multifamily business model of Freddie Mac. Freddie Mac issues senior/subordinate notes to finance most of its multifamily originations, primarily through its K-deal issuances. In these transactions, virtually all credit risk is transferred to investors through subordinated bonds structured to absorb credit risk. Freddie Mac issued CRT bonds on \$57 billion of multifamily production in 2016. Freddie Mac also issues Structured Credit Risk Notes (SCR), which utilize a credit linked note structure to transfer the vast majority of risk on certain loans held in Freddie Mac's retained portfolio-- particularly its portfolio of targeted affordable bond credit enhancements. It has also developed an investment fund vehicle that allows it to raise committed capital against the majority of current and future supplemental mortgages.

Freddie Mac CRT Transactions — Multifamily

Deal Type	Deal Name	Date	Reference Pool UPB ¹ (in millions of \$)	Risk transfer attach/detach points (in basis points)	Sold portion of tranches: Note size ² or RIF (in millions of \$)
SCR	2016-MDN1	5/16/16	1,044	0 / 500	52

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

² Note size represents total risk transfer coverage and is equivalent to RIF.



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

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

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.



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 structures¹, 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

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.

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.

¹ 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>.



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.¹ 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 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.

¹ 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.

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's version of the senior/subordinate program for its single-family program is called Wisconsin Avenue Securities (WAS). 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, only Fannie Mae has 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 the mortgage insurance industry in 2016.

Compensation paid to the lenders for the protection they provide 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 their 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).

