

A PRIMER TO CREDIT RISK TRANSFER BONDS

Introduction to GSE Risk Sharing Deals

07/2015

MSCI Securitized Products Team

OUTLINE

1. Background information
2. Collateral qualification
3. Deal structure
4. Deal performance
5. Modeling

BACKGROUND

OBJECTIVE

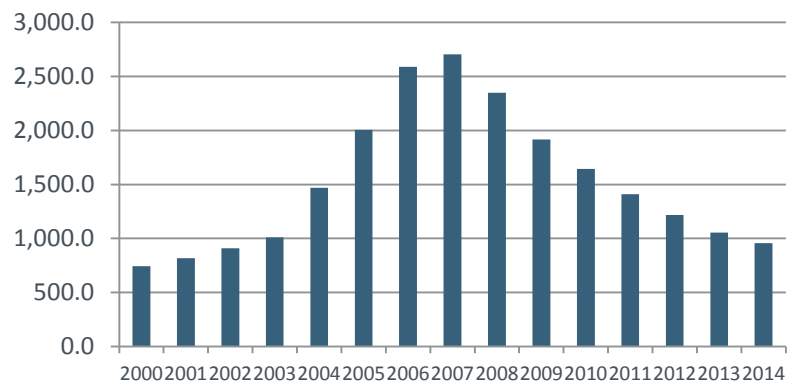
- Reduce taxpayer risk through increasing the role of private capital in the mortgage market
- Provides the GSEs a way to achieve true risk-based pricing of the guarantee fee
- Provide a series of benchmarks against which private-label deals could price new issuance
- Demands from non-agency RMBS investors

ISSUANCE AND MARKET SIZE

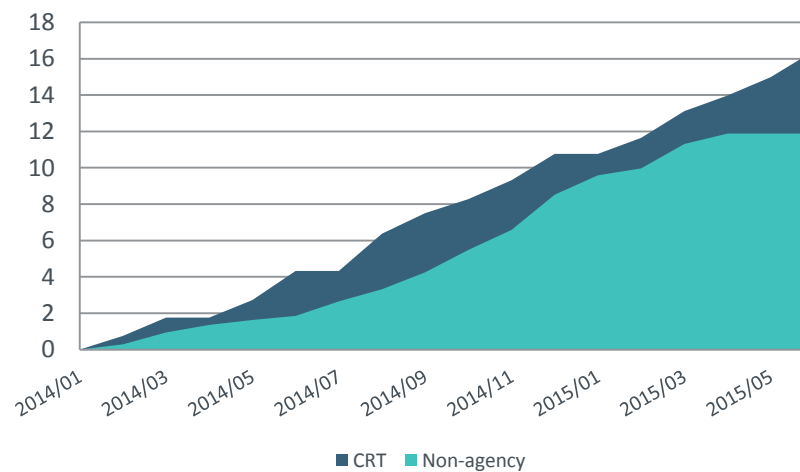
- Gross issuance at \$19.6bn, current outstanding balance at \$18.1bn
- Freddie Mac issued 14 STACR (Structured Agency Credit Risk) deals (\$10.2bn)
- Fannie Mae issued 7 CAS (Connecticut Avenue Securities) deals (\$9.4bn)
- Credit rating distribution
 - AA 1% , A 11%, BBB 33%, BB 7%, NR 48%
- Bond structure
 - M1 A- or better
 - M2 BBB- better
 - M3 Typically B or better
 - B N/R

ALTERNATIVE TO PRIVATE LABELS

Non-agency RMBS Outstanding (\$bn)



Gross Issuance (since 2014)



LIST OF DEALS

Deal	Month	Original (\$mn)	Outstanding (\$mn)
CAS 2013-C01	Oct-13	675	577
CAS 2014-C01	Jan-14	750	665
CAS 2014-C02	May-14	1,600	1,443
CAS 2014-C03	Jul-14	2,050	1,872
CAS 2014-C04	Nov-14	1,449	1,327
CAS 2015-C01	Feb-15	1,469	1,275
CAS 2015-C02	May-15	1,449	1,446
STACR 2013-DN1	Jul-13	500	416
STACR 2013-DN2	Nov-13	630	551
STACR 2014-DN1	Feb-14	1,008	981
STACR 2014-DN2	Apr-14	966	918
STACR 2014-DN3	Aug-14	672	572
STACR 2014-DN4	Oct-14	611	543
STACR 2014-HQ1	Aug-14	460	401
STACR 2014-HQ2	Sep-14	770	758
STACR 2014-HQ3	Oct-14	429	387
STACR 2015-DN1	Jan-15	880	850
STACR 2015-DNA1	Apr-15	1,010	1,006
STACR 2015-DNA2	Jun-15	950	950
STACR 2015-HQ1	Mar-15	860	756
STACR 2015-HQ2	Jun-15	426	425
Total		19,614	18,119

EVOLUTION

Transaction	Issuance Date	Key Highlights
STACR 2013-DN1	Jul-13	Inaugural STACR Transaction
CAS 2013-C01	Oct-13	Inaugural CAS Transaction
STACR 2013-DN2	Nov-13	First Risk Share Transaction Rated by two Rating Agencies
STACR 2014-DN1	Feb-14	New M1 'A' Rated Bond Added
CAS 2014-C02	May-14	First CAS High LTV Transaction
STACR 2014-DN3	Aug-14	Introduced EU Risk Retention Introduced Natural Disaster Forbearance Introduced 100% Review for Credit Events
STACR 2014-HQ1	Aug-14	First STACR High LTV Transaction
STACR 2014-HQ2	Sep-14	Catch Up Transaction First STACR Transaction to Receive NAIC Designation First CAS deal listed on Irish Stock Exchange
CAS 2014-C04	Nov-14	First CAS deal listed on Irish Stock Exchange
STACR 2015-DN1	Feb-15	Inaugural Selling of First Loss First Time Rating M3 Bond Offered Canadian Wrapper on Transaction
STACR 2015-DNA1	Apr-15	First Actual Loss Transaction with Seasoned Collateral DTC Eligible Class B Bond
STACR 2015-HQ2	Jun-15	Last Fixed Severity Transaction Seasoned Collateral
STACR 2015-DNA2	Jun-15	First Actual Loss Transaction with “On the Run” Collateral

BASIC CHARACTERISTICS

- Highly diversified reference pools by seller and geography
- GSE holds the senior risk, which is unfunded and not issued
- Senior mezzanine and junior mezzanine notes are uncapped LIBOR-based floaters issued at par and are sold to investors
- GSE may retain a first-loss piece
- 10-year final maturity for fixed severity and 12.5-year final for actual loss with early redemption option
- Losses in the reference pool are allocated to the Notes in reverse order of seniority
- Investor has no access to the collateral in case of unlikely event like GSE bankrupt

CLEAN COLLATERAL

REFERENCE COLLATERAL ELIGIBILITY

	STACR	CAS
Term	30 years	30 years
Amortization Type	Fixed	Fixed
Property Type	More than 99% are SFH	More than 99% are SFH
Documentation	Full	Full
UPB	Greater than \$5000	Greater than \$5000
Delinquency	No	No
Refinance/Modification	Not originated from HARP and/or other refinance/affordability program	Not under FNMA Refinance Plus Program
LTV	60 to 80 or 80 to 95	60 to 80 or 80 to 97
Sampling	Indistinguishable from non-STACR Reference Pool loans	Indistinguishable from non-CAS Reference Pool loans

COLLATERAL DETAILS

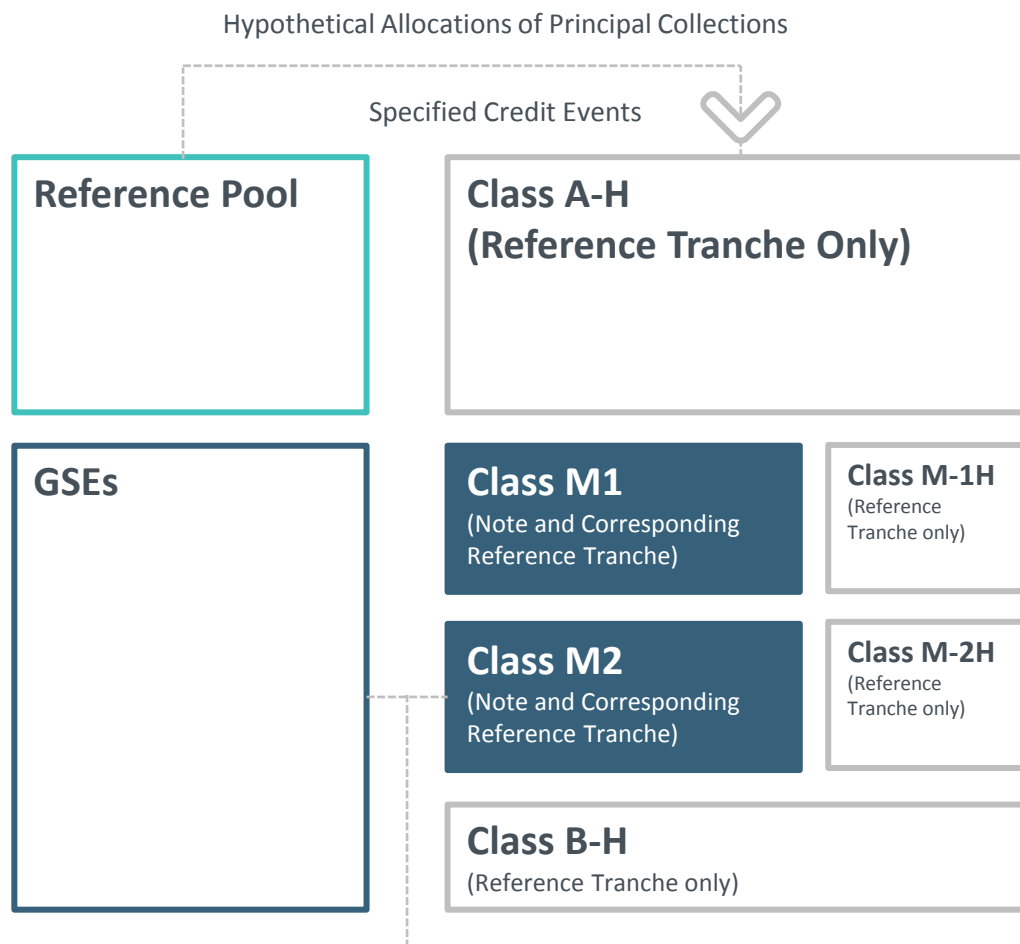
Stratification	\$mn	WAC	WALA	FICO	OLTV	CLTV	DTI	ALS	Investor Purchase	FstBuy	Cashout	Refi	MI	
STACR 2013-DN1	19,083	3.83	33	767	75	63	32	287	5%	30%	10%	17%	43%	0%
CAS 2013-C01	23,126	3.84	32	766	75	62	32	291	8%	29%	12%	15%	44%	0%
STACR 2013-DN2	31,187	3.6	27	764	74	64	32	297	7%	19%	7%	20%	53%	0%
CAS 2014-C01	26,163	3.63	29	765	75	62	32	295	9%	22%	9%	16%	53%	0%
STACR 2014-DN1	29,043	3.72	24	761	75	66	33	289	9%	30%	11%	19%	40%	0%
STACR 2014-DN2	23,853	3.98	21	760	75	69	33	292	7%	37%	15%	17%	31%	0%
CAS 2014-C02 Grp1	42,758	3.58	26	764	74	64	32	300	9%	20%	9%	18%	53%	0%
CAS 2014-C02 Grp2	12,560	3.57	26	756	91	79	33	262	0%	34%	27%	3%	36%	100%
CAS 2014-C03 Grp1	54,523	3.74	23	761	75	66	33	300	9%	27%	12%	17%	43%	0%
CAS 2014-C03 Grp2	17,317	3.73	23	755	92	82	33	259	0%	39%	32%	2%	26%	100%
STACR 2014-DN3	15,237	4.54	18	754	76	70	35	273	8%	45%	19%	17%	19%	0%
STACR 2014-HQ1	8,097	4.55	18	751	92	86	35	251	0%	51%	40%	0%	9%	100%
STACR 2014-HQ2	30,282	3.8	24	757	92	83	33	262	0%	42%	30%	0%	28%	100%
STACR 2014-DN4	12,648	4.57	15	751	76	71	35	274	10%	44%	17%	20%	19%	0%
STACR 2014-HQ3	6,767	4.56	15	749	92	87	35	253	0%	51%	39%	0%	10%	100%
CAS 2014-C04 Grp1	32,592	3.98	21	757	75	68	33	290	10%	36%	15%	17%	32%	0%
CAS 2014-C04 Grp2	16,477	4.03	21	753	92	84	34	261	0%	45%	36%	2%	17%	100%
STACR 2015-DN1	23,671	4.52	11	752	76	73	35	280	9%	48%	19%	17%	16%	0%
CAS 2015-C01 Grp1	27,606	4.56	18	752	76	70	34	270	12%	44%	19%	17%	20%	0%
CAS 2015-C01 Grp2	16,870	4.6	18	749	93	86	35	249	0%	48%	41%	2%	9%	99%
STACR 2015-HQ1	15,548	4.54	11	748	92	88	35	257	0%	52%	41%	0%	8%	100%
STACR 2015-DNA1	31,256	3.67	30	766	74	63	32	296	6%	23%	8%	18%	51%	0%
CAS 2015-C02 Grp1	27,207	4.6	14	747	76	71	35	270	14%	43%	18%	19%	20%	0%
CAS 2015-C02 Grp2	16,617	4.61	14	745	92	87	35	252	0%	46%	42%	3%	9%	99%
STACR 2015-HQ2	29,930	3.8	24	757	92	83	33	262	0%	42%	30%	0%	28%	100%
STACR 2015-DNA2	31,986	4.38	8	752	76	74	35	290	9%	45%	17%	20%	18%	0%

DEAL STRUCTURE

STRUCTURE CHARACTERISTICS

- Senior reference tranche A is more than 95% of the deal size
- GSE may retain a first-loss piece (B tranche) and will retain a vertical slice of each transaction to ensure aligned interest with investors, in addition to retaining an unfunded senior portion of the transaction
- GSE may sell a portion of their retained vertical slice, but will always maintain ownership of at least 5% of the M tranches and 50% of the B tranches

DEAL STRUCTURE



The GSEs pay coupon on Notes, and their obligation to repay principal on the Notes is reduced for credit events on the Reference Pool based on a fixed severity schedule approach

CASH FLOW WATERFALL

WHERE IT COMES FROM

Paid by Freddie Mac

Paid by Freddie Mac

Sum of all full or partial voluntary prepays, removals other than credit events and net adjustments for modifications

Credit Events *times* (1-Severity) plus any Writeup amounts

New Credit Events *times* Severity (adjusted for rep and warranty repurchases and settlements)



Interest



Scheduled Principal



Unscheduled Principal



Calculated Recovery



Writedowns



WHERE IT GOES

Paid to M-1, M-2 on balance after principal and loss allocations

Pro-rata allocation between the senior and subordinate reference tranches

If triggers pass, allocated pro-rata to seniors/subs

If triggers fail, allocated sequentially to senior/subs

Allocated sequentially to senior/subs

Allocated reverse sequentially to senior/subs

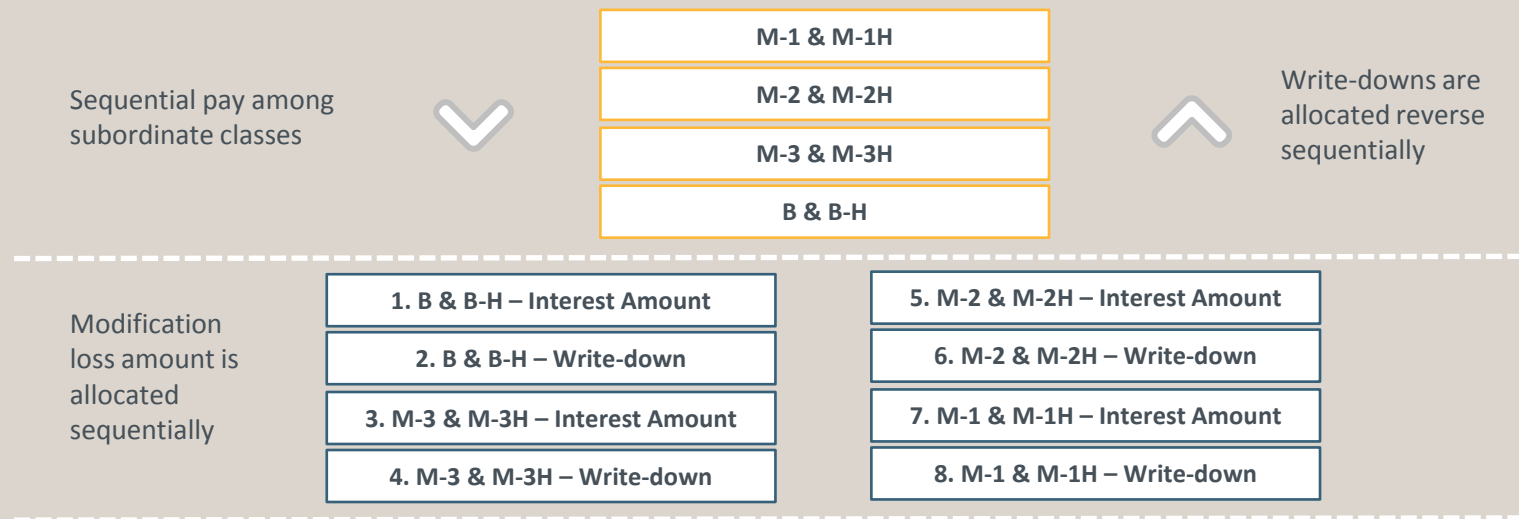
CASH FLOW WATERFALL

SCHEDULED PRINCIPAL:

- Pro rata between senior and subordinate
- Sequential pay among subordinate classes

UNSCHEDULED PRINCIPAL

- Pro rata between senior and subordinate if all triggers pass. Sequential pay among subordinate classes
- Sequential between senior and subordinate if any trigger fails. Sequential pay among subordinate classes



DEAL TRIGGERS

CUMULATIVE CREDIT EVENTS

Payment date ranges	Cumulative Default Trigger
Aug 2013 to Jul 2014	0.25%
Aug 2014 to Jul 2015	0.50%
Aug 2015 to Jul 2016	0.75%
Aug 2016 to Jul 2017	1.00%
Aug 2017 to Jul 2018	1.25%
Aug 2018 to Jul 2019	1.50%
Aug 2019 to Jul 2020	1.75%
Aug 2020 to Jul 2021	2.00%
Aug 2021 to Jul 2022	2.25%
Aug 2022 and beyond	2.50%

CREDIT ENHANCEMENT

Credit enhancement for A-H reference tranche is equal to or greater than original 3%

DELINQUENT TRIGGER (FOR ACTUAL LOSS)

FOR ANY PAYMENT DATE:

- (a) the sum of the Distressed Principal Balance for current and prior five Payment Dates div by six is less than
- (b) 50% of the amount by which:
 - (i) the product of the Sub Percentage and Reference Obligations; exceeds
 - (ii) the Principal Loss Amount.

CREDIT EVENT (LOSS SHARING)

SCHEDULED SEVERITY

- 180 Days (“D180”) Delinquent
- Pre-D180 Short Sale
- Pre-D180 Third Party Sale
- Pre-D180 Deed-in-Lieu
- Pre-D180 REO

ACTUAL LOSS

- Collateral deficiency
- Delinquent interest
- Expenses (such as legal fees, taxes, maintenance cost, etc.) net of any recoveries
- Principal forgiveness due to modification(2) At Loan Modification
- Interest Shortfall
- Bankruptcy cramdown (may occur at property disposition)

CREDIT EVENT (RISK NOT SHARING)

SCHEDULED SEVERITY

- Underwriting defect
- Loans that become ineligible

ACTUAL LOSS

- Underwriting defect
- Major servicing defect (repurchase/make whole)
- Loans that become ineligible
- Counterparty risk(1) (such as lack of MI payment)
- Master servicing cost (such as compensatory and incentive fees)
- Principal forgiveness(2) (if loan becomes a credit event, forgiven UPB is passed as loss at disposition)

SEVERITY SCHEDULE

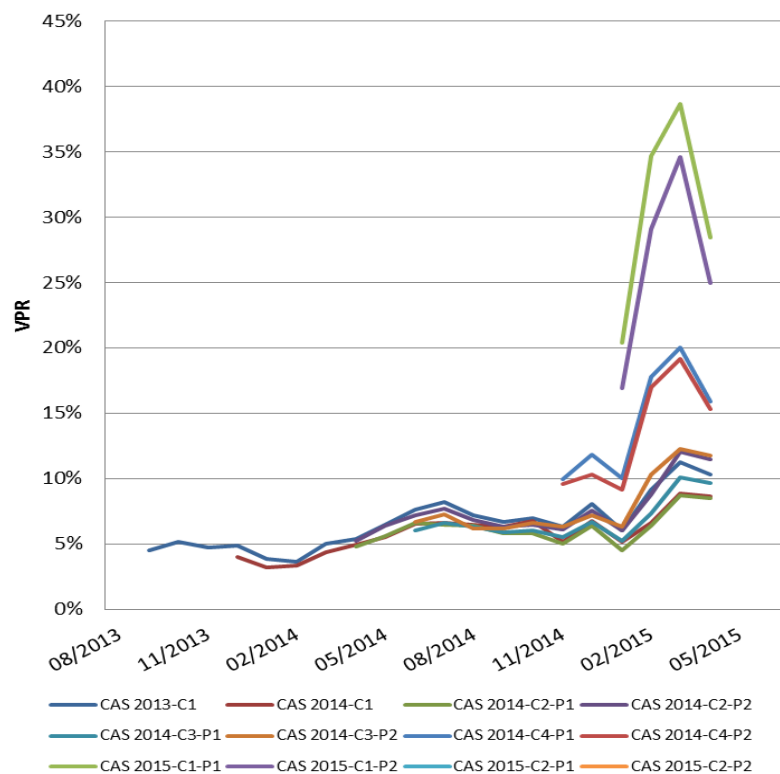
Deal	Severity Schedule				
CAS 2013-C01	1		Schedule 1		
CAS 2014-C01	1	<=1%	>1% and <=2%	>2%	
CAS 2014-C02 Grp1	1	10%	20%	40%	
CAS 2014-C02 Grp2	2				
CAS 2014-C03 Grp1	1		Schedule 2		
CAS 2014-C03 Grp2	3	<=1%	>1% and <=2%	>2%	
CAS 2014-C04 Grp1	1	10%	20%	25%	
CAS 2014-C04 Grp2	3				
CAS 2015-C01 Grp1	1		Schedule 3		
CAS 2015-C01 Grp2	3	<=1%	>1% and <=3%	>3%	
CAS 2015-C02 Grp1	1	10%	20%	40%	
CAS 2015-C02 Grp2	3				
STACR 2013-DN1	4		Schedule 4		
STACR 2013-DN2	4	<=1%	>1% and <=2%	>2%	
STACR 2014-DN1	4	15%	25%	40%	
STACR 2014-DN2	4				
STACR 2014-DN3	4		Schedule 5		
STACR 2014-DN4	4	<=1%	>1% and <=3%	>3% and <=5%	>5%
STACR 2014-HQ1	5	10%	20%	25%	40%
STACR 2014-HQ2	5				
STACR 2014-HQ3	5				
STACR 2015-DN1	4				
STACR 2015-DNA1	Actual Loss				
STACR 2015-DNA2	Actual Loss				
STACR 2015-HQ1	5				
STACR 2015-HQ2	5				

PERFORMANCE

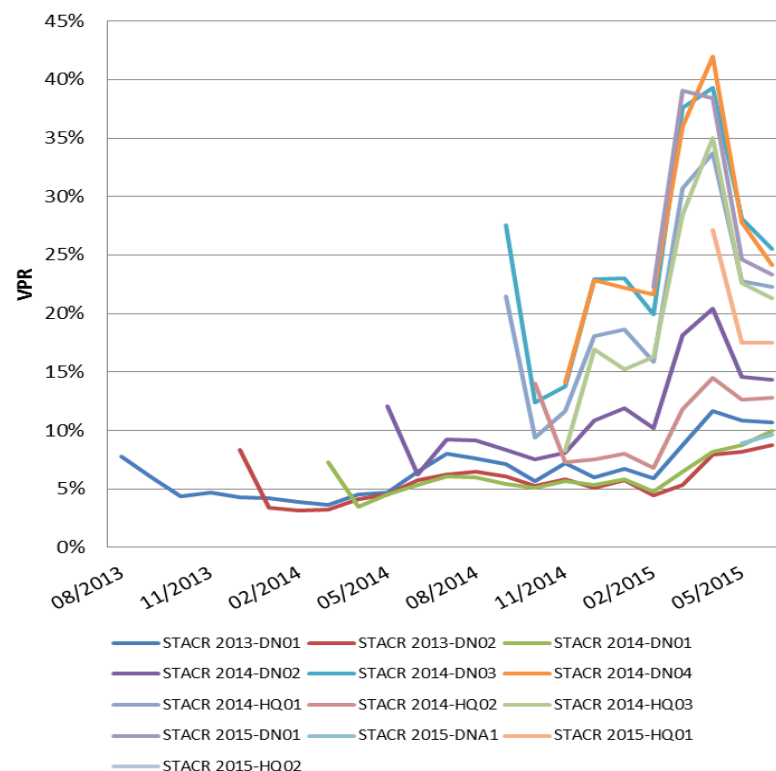
Collateral and Bond Performance

PREPAYMENT RATE

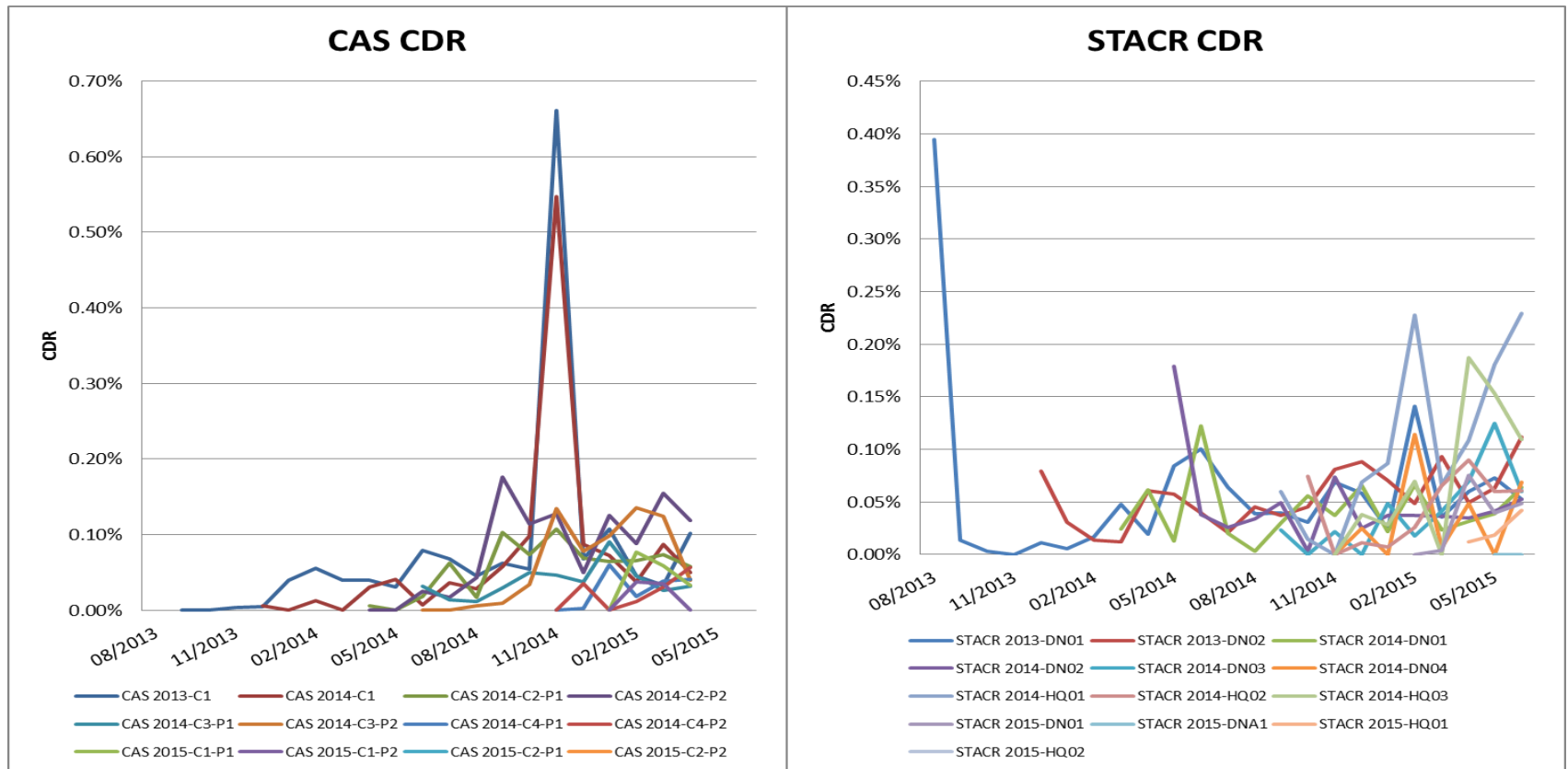
CAS VPR



STACR VPR

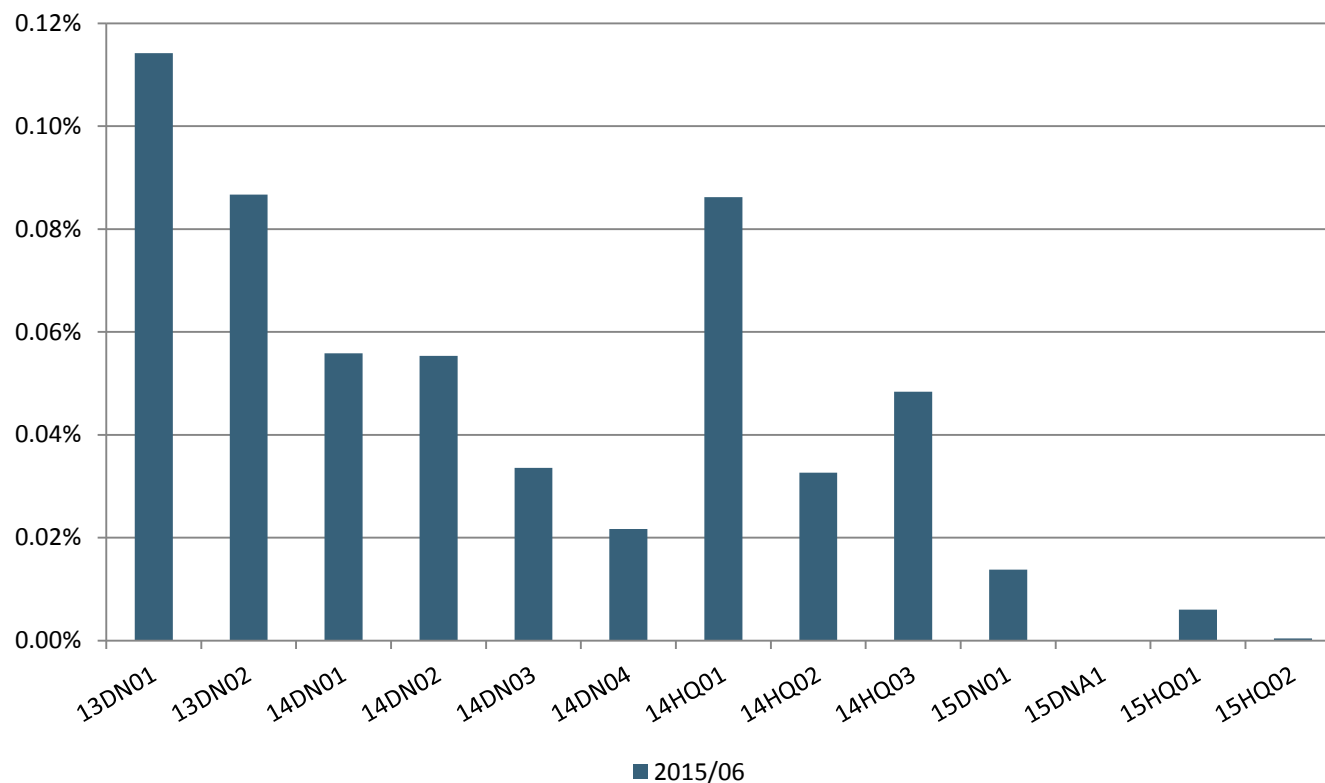


DEFAULT RATE



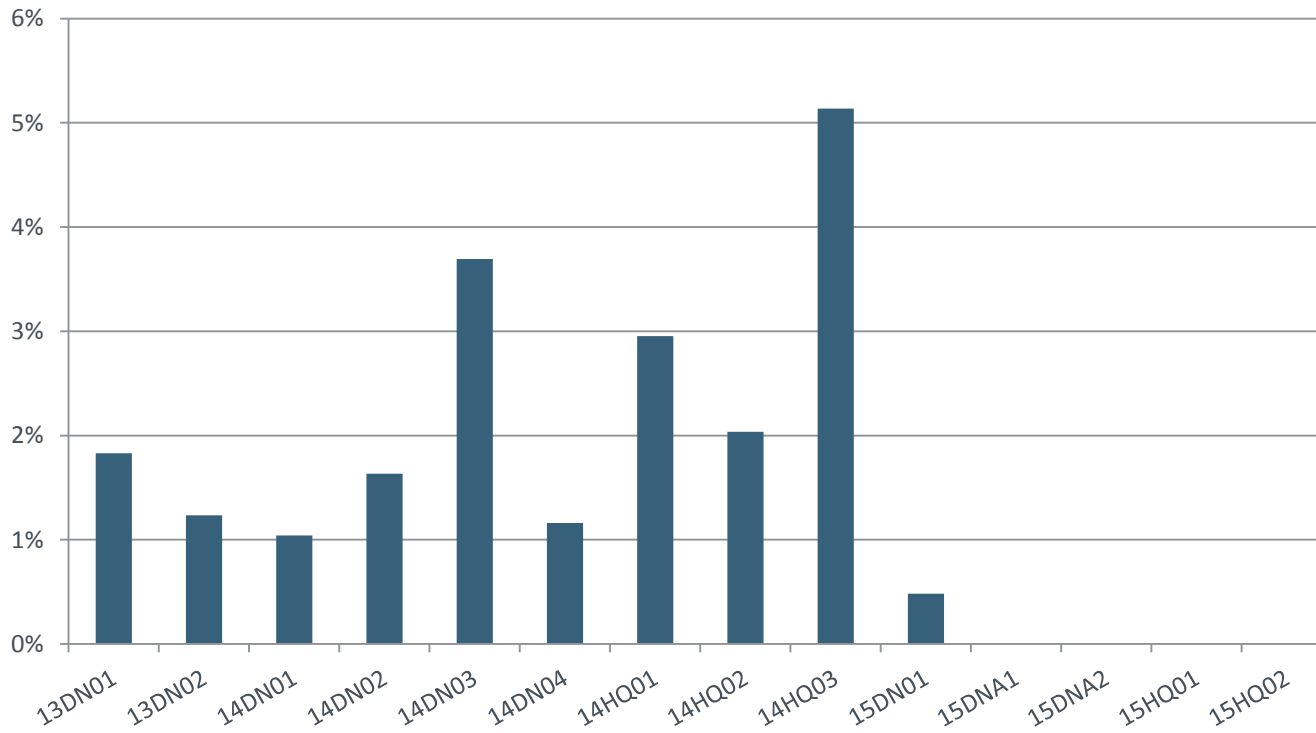
CREDIT EVENT

STACR Cumulative Default Rate



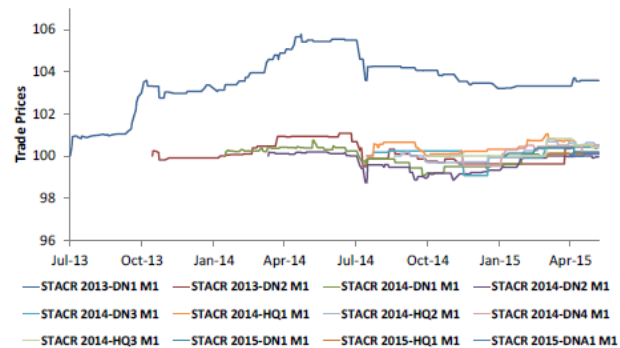
TOTAL DELINQUENCIES

Delinquency Pipeline

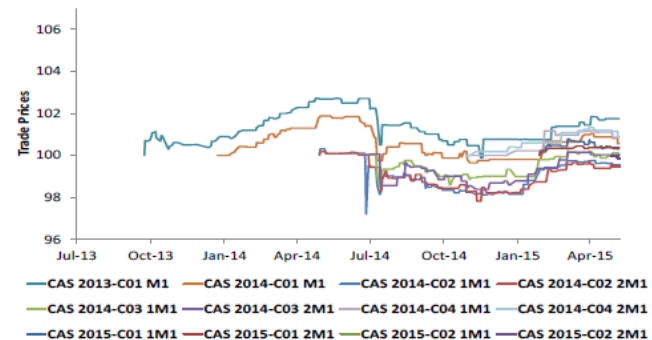


PRICE HISTORY

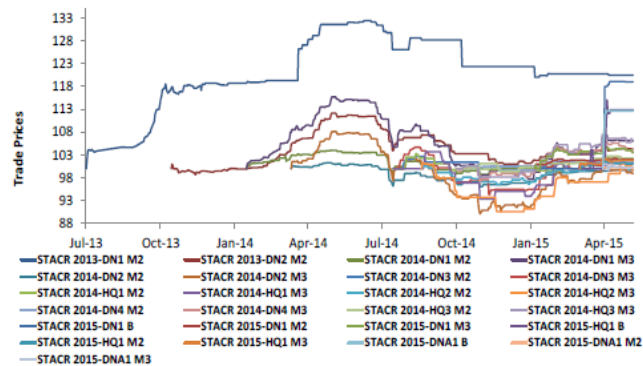
STACR M1 Prices



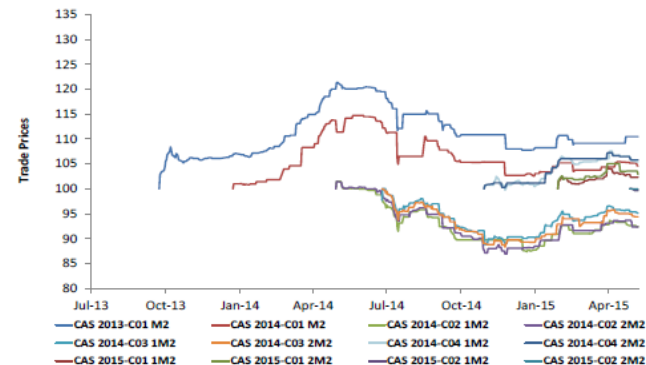
CAS M1 Prices



STACR M2/M3/B Prices

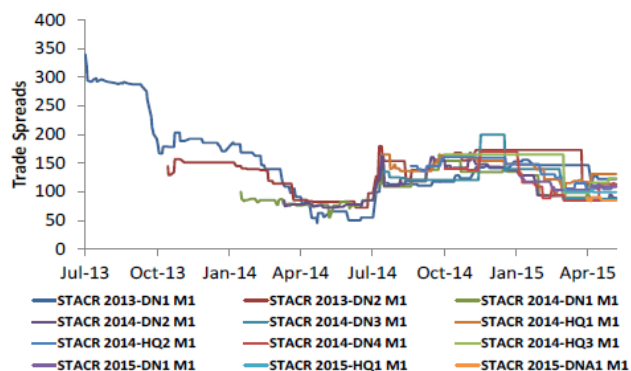


CAS M2/M3 Prices

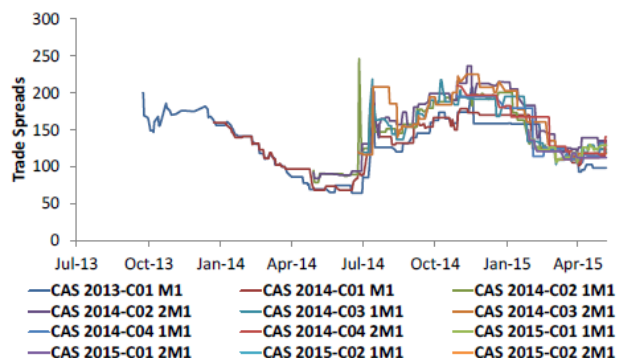


SPREAD HISTORY

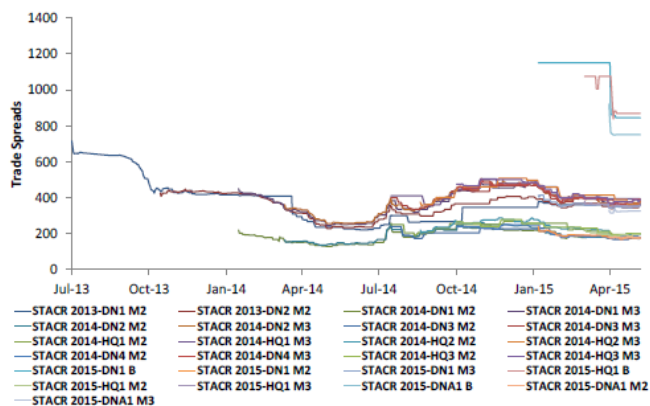
STACR M1 Spreads



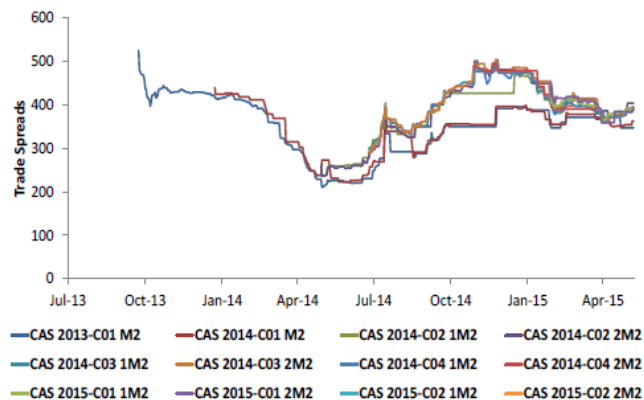
CAS M1 Spreads



STACR M2/M3/B Spreads



CAS M2/M3/B Spreads



RETURN FOR THE M1 TRANCHE

	Deal	Tranche	Monthly Return						Annualized YTD Return
			Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	
STACR	2013-DN1	M1	-0.2%	0.0%	0.3%	0.2%	0.4%	0.2%	2.6%
	2013-DN2	M1	-0.1%	0.1%	0.1%	0.1%	1.0%	0.1%	3.4%
	2014-DN1	M1	0.1%	0.2%	0.6%	0.1%	0.1%	0.1%	2.8%
	2014-DN2	M1	0.5%	0.3%	0.5%	0.2%	0.1%	0.0%	2.8%
	2014-DN3	M1	-1.0%	1.0%	0.1%	0.5%	0.0%	0.0%	4.1%
	2014-HQ1	M1	0.2%	0.3%	0.6%	0.1%	-0.2%	0.1%	2.1%
	2014-HQ2	M1	0.2%	0.4%	0.5%	0.5%	0.0%	0.1%	3.5%
	2014-DN4	M1	-0.4%	0.9%	0.4%	0.1%	0.0%	-0.2%	2.9%
	2014-HQ3	M1	0.2%	0.2%	0.2%	1.0%	-0.2%	0.0%	2.5%
	2015-DN1	M1	-	-	0.2%	0.4%	-0.1%	0.1%	1.9%
	2015-HQ1	M1	-	-	-	-	0.1%	0.1%	1.2%
CAS	2013-C01	M1	0.5%	0.2%	0.2%	0.8%	0.6%	0.0%	4.0%
	2014-C01	M1	0.3%	0.2%	1.0%	0.1%	0.4%	-0.2%	3.4%
	2014-C02	1M1	0.1%	0.5%	0.9%	0.4%	0.0%	0.0%	4.3%
		2M1	0.0%	0.3%	0.5%	0.9%	-0.1%	0.2%	4.4%
	2014-C03	1M1	0.2%	0.1%	0.9%	0.5%	-0.1%	0.2%	3.7%
		2M1	0.3%	0.2%	0.7%	0.9%	0.0%	0.1%	4.6%
	2014-C04	1M1	0.2%	0.4%	1.1%	-0.1%	0.2%	-0.1%	3.7%
		2M1	0.4%	0.6%	0.2%	0.6%	0.3%	-0.2%	3.4%
	2015-C01	1M1	-	-	-	0.4%	-0.2%	0.0%	0.9%
		2M1	-	-	-	0.2%	0.1%	0.1%	1.6%

RETURN FOR THE JUNIOR TRANCHE

	Deal	Tranche	Monthly Return						Annualized YTD Return
			Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	
STACR	2013-DN1	M2	0.5%	-1.4%	1.1%	0.5%	0.3%	0.5%	2.3%
	2013-DN2	M2	-1.8%	1.2%	2.9%	-1.0%	1.2%	0.0%	10.6%
	2014-DN1	M2	1.5%	0.5%	1.7%	-0.1%	0.4%	0.2%	6.5%
		M3	0.8%	0.8%	5.7%	-0.9%	3.3%	0.2%	22.5%
	2014-DN2	M2	0.5%	1.3%	1.4%	0.4%	0.3%	0.2%	8.9%
		M3	1.6%	1.7%	6.7%	-1.2%	2.3%	-0.3%	22.5%
	2014-DN3	M2	0.3%	0.1%	1.6%	0.3%	0.4%	-0.2%	5.1%
		M3	-1.8%	0.4%	7.0%	-1.5%	2.8%	-0.7%	19.3%
	2014-HQ1	M2	-0.7%	0.8%	0.2%	2.2%	1.4%	-0.1%	10.7%
		M3	2.2%	1.8%	5.1%	0.2%	0.8%	0.3%	20.2%
	2014-HQ2	M2	0.8%	0.4%	2.1%	0.0%	2.2%	0.0%	11.3%
		M3	-3.0%	3.4%	5.4%	-0.7%	2.3%	1.0%	28.7%
	2014-DN4	M2	-0.5%	1.4%	1.3%	0.0%	0.2%	0.1%	6.9%
		M3	1.3%	1.8%	4.3%	-0.2%	2.1%	-0.5%	18.3%
	2014-HQ3	M2	-1.4%	1.1%	1.1%	0.4%	1.5%	-0.1%	9.9%
		M3	0.4%	2.9%	5.0%	0.5%	1.5%	-0.2%	24.4%
	2015-DN1	M2	-	-	1.2%	0.0%	0.3%	0.3%	5.7%
		M3	-	-	4.2%	0.2%	0.7%	-0.1%	15.9%
		B	-	-	0.7%	0.9%	20.1%	0.8%	74.8%
	2015-HQ1	M2	-	-	-	-	1.0%	-0.2%	4.8%
		M3	-	-	-	-	1.1%	0.6%	10.7%
		B	-	-	-	-	12.9%	1.5%	103.7%
CAS	2013-C01	M2	-2.2%	0.7%	2.7%	-1.0%	0.5%	1.6%	10.6%
	2014-C01	M2	-2.1%	1.1%	2.1%	-1.1%	1.0%	0.6%	8.9%
	2014-C02	1M2	0.3%	-1.1%	5.0%	-1.6%	2.9%	-0.8%	10.3%
		2M2	0.3%	2.1%	3.7%	-0.9%	2.5%	-1.1%	14.9%
	2014-C03	1M2	0.7%	1.3%	4.3%	-0.3%	1.8%	-0.5%	16.5%
		2M2	1.3%	1.1%	4.2%	-0.6%	3.1%	-1.2%	16.0%
	2014-C04	1M2	1.2%	0.9%	4.4%	-0.3%	1.7%	-0.8%	14.3%
		2M2	0.7%	0.4%	5.3%	0.4%	1.0%	-0.4%	16.4%
	2015-C01	1M2	-	-	-	0.1%	1.6%	-0.4%	5.1%
		2M2	-	-	-	0.6%	3.1%	-1.7%	7.9%

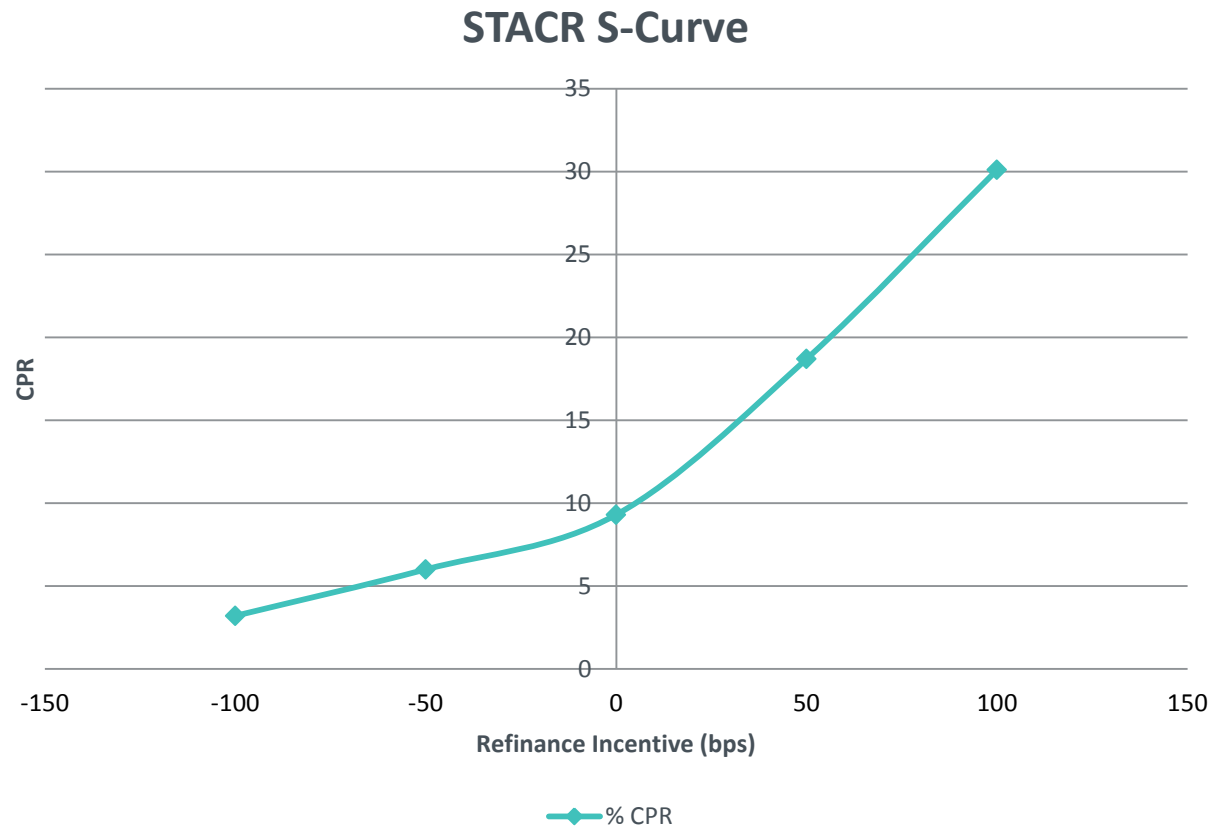
COLLATERAL MODELING

CRT VALUATION ASSUMPTION FOR RISK MANAGER

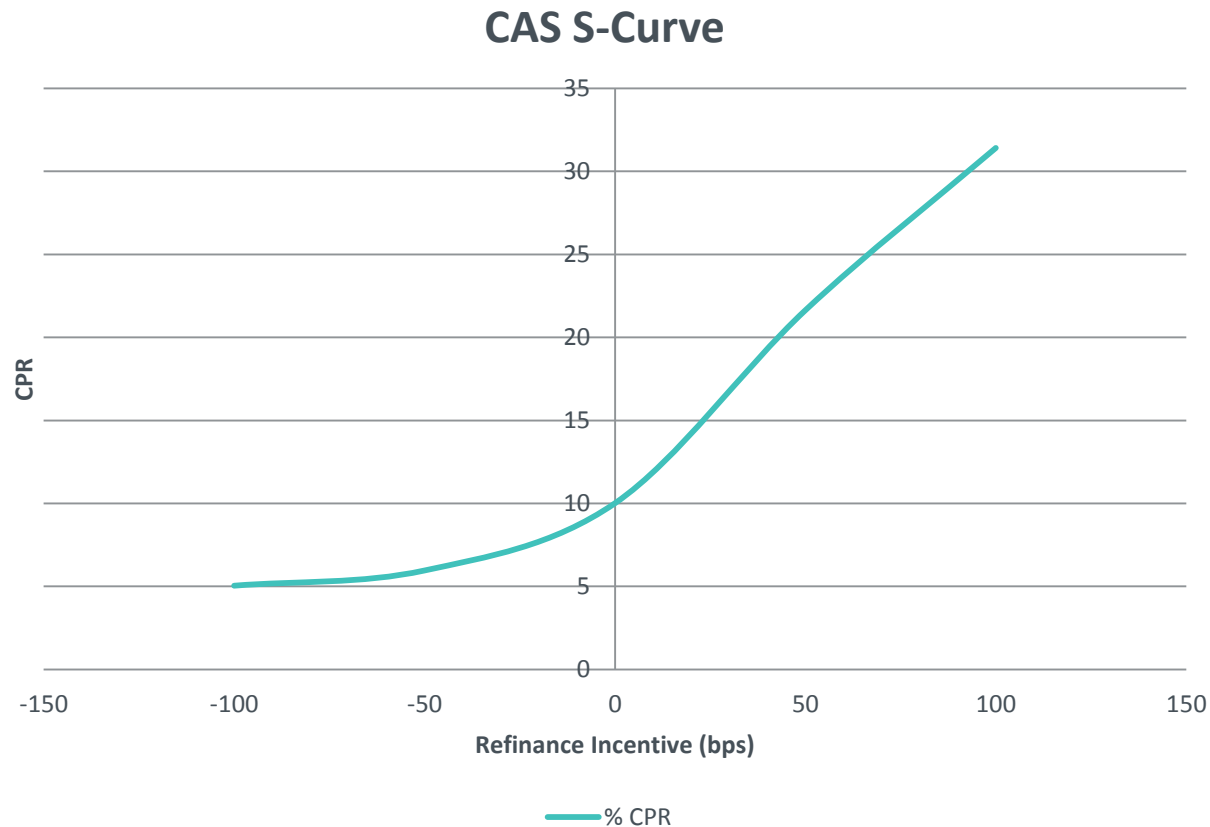
RISKMANAGER SUPPORTS BOTH STACR AND CAS BONDS NOW BY USING ST MODEL

CRT VALUATION SCENARIO	CPR	CDR	LOSS SEVERITY
Base Case	8	0.03	20
	12	0.05	20
	18	0.1	20
Stressed	6	0.25	25
	6	0.5	25
Very Stressed	5	0.5	30
	5	0.7	30
	5	1	30

S-CURVE



S-CURVE CONTINUED...



ROLL RATES

	Delq	C	3	6	9	S	P	D
0-1 Year	C	95.78	0.15	0.01	0.00	0.00	4.04	0.01
	3	67.93	24.97	3.72	1.19	1.23	0.78	0.17
	6	50.96	7.15	24.71	7.61	0.00	7.87	1.71
	9	5.10	0.00	0.00	0.00	0.00	0.00	94.90
	S	0.00	0.00	0.00	0.00	30.03	0.00	69.97
1-2 Years	C	96.07	0.18	0.02	0.01	0.01	3.71	0.01
	3	63.51	24.50	4.43	1.42	1.27	3.70	1.17
	6	36.81	10.16	20.96	10.65	8.85	2.37	10.20
	9	12.87	3.06	7.13	18.10	27.68	2.89	28.27
	S	8.59	0.00	1.93	0.00	24.79	2.57	62.12
2-3 Years	C	98.36	0.11	0.01	0.00	0.00	1.51	0.00
	3	45.49	46.02	2.48	0.38	2.14	2.53	0.97
	6	30.44	7.71	43.40	1.39	10.15	4.14	2.76
	9	14.43	3.71	8.58	26.92	28.25	2.95	15.16
	S	7.34	1.71	2.87	0.00	41.07	4.85	42.15

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