



PF2 SECURITIES EVALUATIONS, INC.

Vanilla ABX Evaluation



Guillaume Fillebeen
212-917-4944
guillaume.fillebeen@pf2se.com

Updated: 11/04/2008

Introduction

- Describes a methodology for evaluating the ABX by projecting each underlying deal's (1) monthly losses and (2) months-to-writedown
- Easily implemented in Excel using:
 - A roll rate matrix
 - Data available on Bloomberg
- Enhancements, for a more accurate evaluation, are described throughout this presentation



Table of Contents

- Project underlying deal's monthly losses:
 - Create roll rate matrix
 - Project monthly states
 - Derive monthly losses

- Calculate underlying deal's months-to-writedown:
 - Find credit enhancement
 - Establish months-to-writedown

- Derive evaluation

- Example: ABX 2007-1 BBB-



Underlying Deal's Monthly Losses



Step 1: Roll Rate Matrix

Subprime Roll Rate - as of 06/03/2008

<i>From \ To</i>	Current	30D	60D	90+	FCL	REO	Prepay	Default
Current	94.0	4.8	0.1	0.0	0.0	0.0	1.1	0.0
30D	17.6	31.4	45.5	0.7	4.4	0.0	0.3	0.1
60D	5.9	5.9	19.5	40.2	28.0	0.0	0.3	0.2
90+	4.3	0.5	1.3	71.2	18.1	0.9	0.1	3.6
FCL	0.0	0.0	0.0	0.0	88.1	10.3	0.0	1.5
REO	0.0	0.0	0.0	0.0	0.0	87.6	0.0	12.4
Prepay	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Default	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0

Sources: UBS, Loan Performance, PF2 Securities Evaluations

- Rows describe initial states at the beginning of the month
- Columns describe the states at the end of the month
- For example, according to the above matrix, a 60D mortgage loan has a 5.90% probability of being cured in a given month
- Prepayment speeds and default rates* are embedded in the last two columns of the above matrix

See Appendix I for tips on enhancing this matrix

* For mortgages, defaults are “realized” upon recovery



Step 2: Project States

Current	397.0	×	<i>From \ To</i>	Current	30D	60D	90+	FCL	REO	Prepay	Default	=	Current	380.6
30D	22.6		Current	94.0	4.8	0.1	0.0	0.0	0.0	1.1	0.0		30D	27.6
60D	19.1		30D	17.6	31.4	45.5	0.7	4.4	0.0	0.3	0.1		60D	14.9
90+	30.6		60D	5.9	5.9	19.5	40.2	28.0	0.0	0.3	0.2		90+	33.4
FCL	69.2		90+	4.3	0.5	1.3	71.2	18.1	0.9	0.1	3.6		FCL	68.5
REO	25.4		FCL	1.5	0.2	0.2	5.3	81.8	9.6	0.0	1.4		REO	29.0
Prepay	-		REO	0.0	0.0	0.0	0.4	0.2	87.1	0.0	12.3		Prepay	4.5
Default	-		Prepay	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0		Default	5.3
A(0) [1 x 8 matrix]			B [8 x 8 matrix]								A(1) [1 x 8 matrix]			

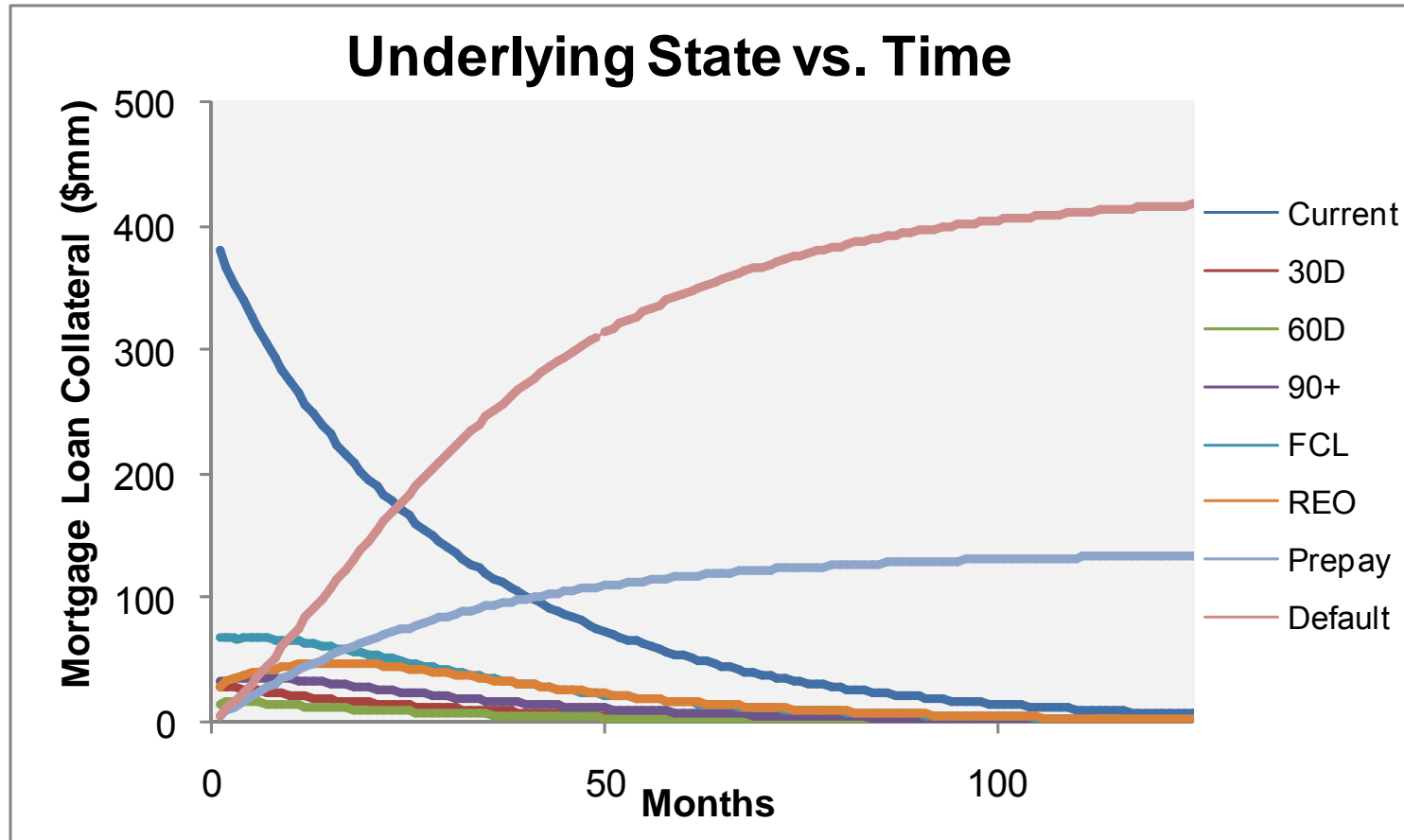
- Project the next month's states [A(1)] by multiplying the existing month's states [A(0)] with our roll rate matrix [B]
- States are then projected for each month via the series:

$$A(t) \times B = A(t+1)$$

Note: Matrices A(0) and A(1) are transposed solely for illustration purposes



Step 2: Project States (cont'd.)



- As expected, all underlying mortgage loans eventually prepay or default



Step 3: Derive Monthly Losses

Month	Current	30D	60D	90+	FCL	REO	Prepay	Default	Loss
1	380.6	27.6	14.9	33.4	68.5	29.0	4.5	5.3	2.4
2	366.0	28.1	16.4	33.7	67.5	32.2	8.9	11.0	5.0
3	352.4	27.7	16.9	34.5	67.2	34.8	13.1	17.2	7.7
4	339.6	26.9	16.8	35.3	67.3	37.1	17.1	23.7	10.7
5	327.5	26.1	16.5	35.8	67.4	39.1	21.0	30.6	13.8
6	316.0	25.2	16.0	36.0	67.4	40.8	24.8	37.7	17.0
7	304.9	24.3	15.5	36.0	67.3	42.4	28.4	45.0	20.2
8	294.4	23.5	15.0	35.7	67.1	43.7	31.9	52.5	23.6
9	284.3	22.7	14.5	35.4	66.7	44.8	35.3	60.1	27.1
10	274.6	21.9	14.0	34.9	66.1	45.7	38.6	67.9	30.6
11	265.3	21.2	13.6	34.3	65.4	46.5	41.7	75.8	34.1
12	256.4	20.5	13.1	33.7	64.5	47.1	44.8	83.7	37.7
13	247.8	19.8	12.7	33.0	63.5	47.5	47.8	91.6	41.2
14	239.5	19.2	12.3	32.3	62.5	47.8	50.6	99.6	44.8
15	231.6	18.5	11.9	31.6	61.3	47.9	53.4	107.6	48.4
16	223.9	17.9	11.5	30.9	60.1	47.9	56.1	115.5	52.0
17	216.6	17.3	11.1	30.1	58.9	47.8	58.6	123.4	55.5
18	209.5	16.8	10.8	29.3	57.6	47.5	61.1	131.2	59.0
19	202.6	16.2	10.4	28.6	56.3	47.2	63.5	139.0	62.5
20	196.0	15.7	10.1	27.8	54.9	46.8	65.9	146.6	66.0
21	189.6	15.2	9.8	27.1	53.6	46.3	68.1	154.2	69.4
22	183.5	14.7	9.5	26.3	52.2	45.7	70.3	161.6	72.7
23	177.5	14.2	9.2	25.6	50.9	45.0	72.4	169.0	76.0
24	171.8	13.8	8.9	24.9	49.5	44.3	74.5	176.2	79.3
25	166.2	13.3	8.6	24.2	48.2	43.6	76.5	183.2	82.5
299	0.0	0.0	0.0	0.0	0.0	0.0	136.7	427.1	192.2
300	0.0	0.0	0.0	0.0	0.0	0.0	136.7	427.1	192.2

- Apply severity assumptions* to the cumulative default vector to obtain the cumulative loss vector

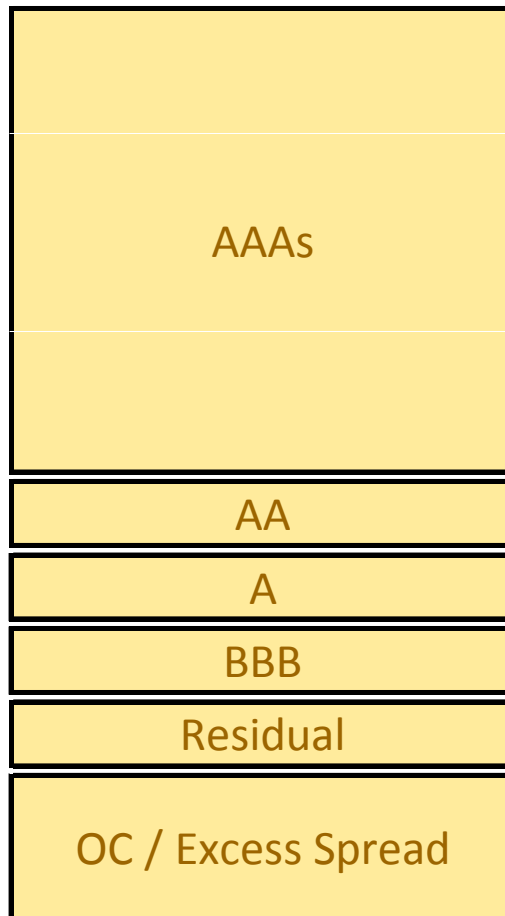
* Severity may be calculated using current LTV (original LTV adjusted for prepayments and HPA since issuance) net of any servicer advances made prior to recovery and any adjustments for default



Underlying Deal's Months-to-Writedown



Step 1: Credit Enhancement



- Credit enhancement consists of subordination, OC and excess spread
- Credit enhancement represents the total amount of losses a deal can absorb before the tranche of interest attaches, and writedown occurs

Note: The status of a deal's triggers (e.g., delinquency, loss) may alter future credit enhancement levels



Step 2: Months-to-Writedown

Month	Loss
1	2.4
2	5.0
3	7.7
4	10.7
5	13.8
6	17.0
7	20.2
8	23.6
9	27.1
10	30.6
11	34.1
12	37.7
13	41.2
14	44.8
15	48.4
16	52.0
17	55.5
18	59.0
19	62.5
20	66.0
21	69.4
22	72.7
23	76.0
24	79.3
25	82.5
299	192.2
300	192.2

- *Assumption:* binary writedown occurs when losses exceed credit enhancement + $\frac{1}{2}$ tranche thickness
- Compare the above amount to our loss vector to obtain the month of writedown
- For example, a tranche with \$24 million credit enhancement and \$10 million thickness is assumed to writedown when losses exceed \$29 million. According to our loss vector, writedown occurs at time 10 months.

See Appendix II for tips on enhancing this process

Note: This simplified approach ignores dynamic structural features (i.e., credit enhancement is assumed to be constant)



Derive Evaluation

- The original premium on each ABX tranche was set to reflect initial expected losses

$$\text{Price} = 100 + \text{PV of premiums} - \text{PV of writedowns} = 100$$

- However, as loss expectations change over time, an upfront payment becomes necessary to adjust the premium

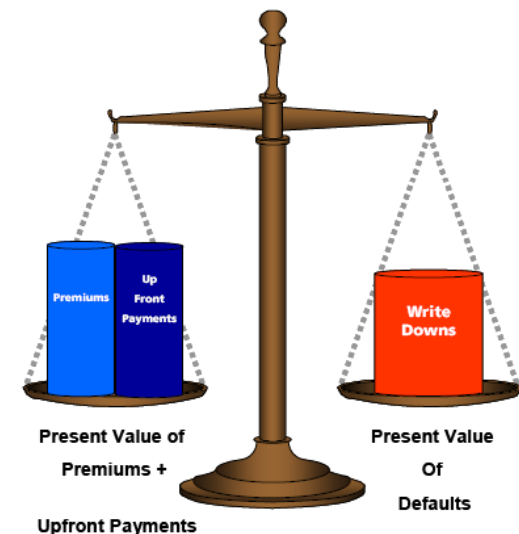
$$\text{Price} = 100 + \text{PV of premiums} + \text{upfront pmt.} - \text{PV of writedowns} = 100$$

Where PV of premiums:

$$PV(p, t) = \left(\frac{p}{1200} \right) \left(\frac{1 - \left(1 + \frac{LIBOR}{12} \right)^{-T}}{\frac{LIBOR}{12}} \right)$$

And PV of writedowns:

$$PV(wd, t) = 100 \left(\frac{\frac{wd}{20}}{\left(1 + \frac{LIBOR}{12} \right)^T} \right)$$



Note: Upfront payments decrease as loss expectations decrease, and vice versa

Source: UBS



Example: Pricing ABX 2007-1 BBB-

Deal	Tranche Information				Collateral Information						Analysis		
	Name	CUSIP	O/S Par (\$mm)	CS (\$mm)	Current (\$mm)	30D (\$mm)	60D (\$mm)	90+ (\$mm)	FCL (\$mm)	REO (\$mm)	WD Time (months)	PV of WD (\$mm)	PV of Prem. (\$mm)
ABFC 2006-OPT2	M9	00075XAQ0	8.79	27.58	467.72	35.49	14.49	18.11	126.69	61.86	7	5.45	0.12
ACE 2006-NC3	M9	00442EAS4	13.51	25.69	633.28	52.49	45.84	97.67	174.74	103.31	4	5.49	0.07
BSABS 2006-HE10	M9	07389RBB1	11.21	17.60	342.08	35.63	33.88	94.41	79.62	38.38	6	5.46	0.11
CARR 2006-NC4	M9	14453MAP9	22.64	67.93	714.80	68.99	41.98	106.64	124.18	112.72	9	5.41	0.16
CBASS 2006-CB6	B1	14986PAP8	10.54	24.57	307.55	35.16	23.05	23.49	54.40	38.63	9	5.41	0.16
CMLTI 2006-WFH3	M9	17309QAN4	16.27	58.43	716.15	50.30	34.65	53.85	104.25	56.90	11	5.38	0.19
CWL 2006-18	M9	23243WAN8	16.15	37.75	771.93	65.42	48.89	73.51	171.77	75.56	6	5.46	0.11
FFML 2006-FF13	M9	30247DAP6	15.91	49.11	984.14	85.61	40.27	43.04	219.79	164.15	5	5.48	0.09
FHLT 2006-3	M9	35729MAP2	17.93	15.44	541.62	51.24	25.93	63.68	211.48	143.24	3	5.51	0.05
GSAMP 2006-HE5	M9	362437AP0	11.41	9.48	392.28	46.65	26.27	56.94	53.94	63.01	4	5.49	0.07
HEAT 2006-7	B1	43709NAQ6	0.00	n/a	411.09	43.98	31.51	53.54	121.15	68.13	0	0.00	0.00
JPMAC 2006-CH2	MV9	46629QBF2	11.40	50.91	849.90	66.37	42.04	38.91	161.52	45.77	9	5.41	0.16
LBMLT 2006-6	M9	54251RAP8	0.00	n/a	557.47	65.95	49.89	93.39	146.36	150.62	0	0.00	0.00
MABS 2006-NC3	M9	55275RAP7	11.86	30.07	485.56	36.90	22.31	36.90	98.87	83.51	6	5.46	0.11
MLMI 2006-HE5	B3	59022QAP7	15.14	17.85	534.87	59.60	32.16	69.69	172.19	74.50	4	5.49	0.07
MSAC 2006-HE6	B3	61750FAQ3	17.66	7.12	534.83	55.86	41.75	80.87	187.86	107.19	2	5.52	0.04
RASC 2006-KS9	M9	75406YAP2	13.58	5.28	565.77	46.55	20.11	29.28	176.22	52.06	3	5.51	0.05
SABR 2006-HE2	B3	81377AAN2	12.81	0.69	358.67	28.46	20.13	36.78	111.77	65.48	2	5.52	0.04
SASC 2006-BC4	M9	86359RAP1	15.77	28.15	701.03	67.09	21.48	67.44	165.67	126.14	4	5.49	0.07
SVHE 2006-EQ1	M9	83612JAN4	21.59	62.36	790.72	43.26	38.55	37.29	150.55	87.09	10	5.40	0.18
Total											98.36	1.85	

- Premium paid on ABX 2007-1 BBB- is 389 bps
- Price = \$100 + PV of premiums* – PV of writedowns*
= \$100 + \$1.85 – \$98.36
= \$3.49

* Assumes a LIBOR rate of 3.45%



Summary

- A simple model to understand and implement
- Loan level default rates, default timing profiles and prepayment speeds are self-contained within the roll rate matrix
- Easily strengthened with access to loan level data and deal analytics
- Can be extended to run evaluations on TABX, RMBS/CMOs and ABS CDO deals



Appendices



I – Enhancing Roll Rate Matrix

- Greater accuracy can be achieved by stratifying the mortgage loan portfolio (see below), and recognizing each sub-bucket's effect on the portfolio's prepayment speeds and default rates
- For example, delinquent 2nd lien loans default earlier than their 1st lien counterparts

Stratifications	Examples
Documentation Level	Full, Limited, Stated Income/Stated Asset
Lien	First, Second, Third
Property Type	Single Family, Multi-Family, MH, Condo
Occupancy Type	Owner, Investor, Vacation
Loan Purpose	Purchase, Rate/Term Refi, Cash-Out Refi
Coupon Type	Fixed, ARM
Loan Characteristics	Balloon, Neg Am, HELOC
Loan Maturity	15 year ARM, 30 year ARM
FICO	<500, 501<FICO<550
DTI	<30%, 30%<DTI<45%
CLTV	<70%, 70%<CLTV<85%
State	CA, FL, NY, TX



I – (continued)

- For illustration purposes, we have added a combined loan-to-value (CLTV < 60%, CLTV ≥ 60%) stratification to the original roll-rate matrix

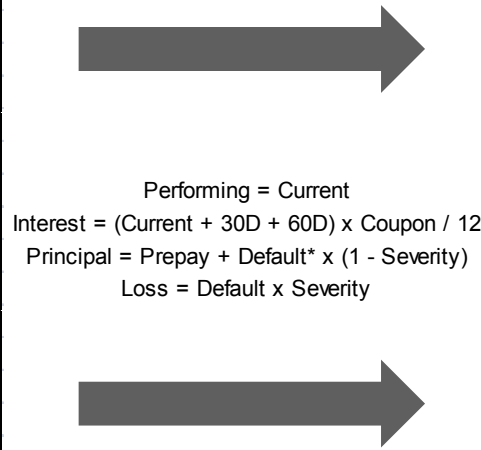
Subprime Roll Rate with CLTV Stratification - as of 06/03/2008

<i>From \ To</i>		Current	30D	60D	90+	FCL	REO	Prepay	Default
Current	CLTV < 60%	93.1	4.8	0.1	0.0	0.0	0.0	2.1	0.0
	CLTV ≥ 60%	94.1	4.8	0.1	0.0	0.0	0.0	0.9	0.0
30D	CLTV < 60%	17.6	31.3	45.4	0.7	4.4	0.0	0.6	0.0
	CLTV ≥ 60%	17.6	31.4	45.5	0.7	4.4	0.0	0.3	0.1
60D	CLTV < 60%	5.9	5.9	19.5	40.2	27.9	0.0	0.6	0.1
	CLTV ≥ 60%	5.9	5.9	19.5	40.2	28.0	0.0	0.3	0.3
90+	CLTV < 60%	4.4	0.5	1.3	72.7	18.5	0.9	0.2	1.5
	CLTV ≥ 60%	4.2	0.5	1.3	69.9	17.8	0.9	0.1	5.4
FCL	CLTV < 60%	1.5	0.2	0.2	5.3	82.5	9.7	0.0	0.6
	CLTV ≥ 60%	1.5	0.2	0.2	5.3	81.3	9.5	0.0	2.1
REO	CLTV < 60%	0.0	0.0	0.0	0.4	0.2	94.3	0.0	5.0
	CLTV ≥ 60%	0.0	0.0	0.5	15.1	27.0	39.1	0.0	18.3
Prepay	All	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Default	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0



II – Enhancing Month-to-Writedown

Month	Current	30D	60D	90+	FCL	REO	Prepay	Default
1	380.6	27.6	14.9	33.4	68.5	29.0	4.5	5.3
2	366.0	28.1	16.4	33.7	67.5	32.2	8.9	11.0
3	352.4	27.7	16.9	34.5	67.2	34.8	13.1	17.2
4	339.6	26.9	16.8	35.3	67.3	37.1	17.1	23.7
5	327.5	26.1	16.5	35.8	67.4	39.1	21.0	30.6
6	316.0	25.2	16.0	36.0	67.4	40.8	24.8	37.7
7	304.9	24.3	15.5	36.0	67.3	42.4	28.4	45.0
8	294.4	23.5	15.0	35.7	67.1	43.7	31.9	52.5
9	284.3	22.7	14.5	35.4	66.7	44.8	35.3	60.1
10	274.6	21.9	14.0	34.9	66.1	45.7	38.6	67.9
11	265.3	21.2	13.6	34.3	65.4	46.5	41.7	75.8
12	256.4	20.5	13.1	33.7	64.5	47.1	44.8	83.7
13	247.8	19.8	12.7	33.0	63.5	47.5	47.8	91.6
14	239.5	19.2	12.3	32.3	62.5	47.8	50.6	99.6
15	231.6	18.5	11.9	31.6	61.3	47.9	53.4	107.6
16	223.9	17.9	11.5	30.9	60.1	47.9	56.1	115.5
17	216.6	17.3	11.1	30.1	58.9	47.8	58.6	123.4
18	209.5	16.8	10.8	29.3	57.6	47.5	61.1	131.2
19	202.6	16.2	10.4	28.6	56.3	47.2	63.5	139.0
20	196.0	15.7	10.1	27.8	54.9	46.8	65.9	146.6
21	189.6	15.2	9.8	27.1	53.6	46.3	68.1	154.2
22	183.5	14.7	9.5	26.3	52.2	45.7	70.3	161.6
23	177.5	14.2	9.2	25.6	50.9	45.0	72.4	169.0
24	171.8	13.8	8.9	24.9	49.5	44.3	74.5	176.2
25	166.2	13.3	8.6	24.2	48.2	43.6	76.5	183.2
299	0.0	0.0	0.0	0.0	0.0	0.0	136.7	427.1
300	0.0	0.0	0.0	0.0	0.0	0.0	136.7	427.1



Performing	Interest	Principal	Loss
380.6	2.8	7.4	25.9
366.0	2.7	7.5	28.5
352.4	2.6	7.6	31.2
339.6	2.6	7.6	34.2
327.5	2.5	7.7	37.3
316.0	2.4	7.7	40.5
304.9	2.3	7.7	43.7
294.4	2.2	7.6	47.1
284.3	2.1	7.6	50.6
274.6	2.1	7.5	54.1
265.3	2.0	7.5	57.6
256.4	1.9	7.4	61.2
247.8	1.9	7.3	64.7
239.5	1.8	7.2	68.3
231.6	1.7	7.1	71.9
223.9	1.7	7.0	75.5
216.6	1.6	6.9	79.0
209.5	1.6	6.8	82.5
202.6	1.5	6.7	86.0
196.0	1.5	6.5	89.5
189.6	1.4	6.4	92.9
183.5	1.4	6.3	96.2
177.5	1.3	6.1	99.5
171.8	1.3	6.0	102.8
166.2	1.3	5.9	106.0
0.0	0.0	0.0	215.7
0.0	0.0	0.0	215.7

- Derive performing balance, interest proceeds, principal proceeds and cumulative loss vectors from monthly states

* Refers to mortgage loans that transitioned to default state with respect to current period



II – (continued)

- Feed performing balance, interest proceeds, principal proceeds and cumulative loss vectors into the corresponding ABS deal's model (obtained through an analytical platform such as INTEx)
- Allows for specific deal's dynamic structural features to affect waterfall distributions
 - Credit enhancement will vary over time, providing a more accurate measure of the timing of writedowns (based on your initial roll rate matrix)



Disclaimer

- This presentation is for information purposes only and should not be construed to constitute a solicitation, recommendation or offer to buy or sell these securities or financial instruments in any jurisdiction, or an official confirmation of any transaction, or as an official statement of PF2 Securities Evaluations, Inc. (PF2).
- Any analytical procedure(s) described in this presentation are based on numerous assumptions; different assumptions may result in materially different outcomes, and may require various and substantial adjustments from time to time; any analytical procedures discussed, or assumptions used in this presentation should not be regarded as a substitute for the conduct of independent analysis.
- No representation or warranty, either express or implied, is provided in relation to the accuracy, completeness or reliability of the information contained herein. PF2 does not undertake that investors will obtain profits, nor will it share with investors any investment profits nor accept any liability for any investment losses. Investments involve risks and investors should exercise prudence in making their investment decisions.
- Please be advised that any discussion of U.S. tax matters contained within this presentation is not intended or written to be used and cannot be used for the purpose of (i) avoiding U.S. tax related penalties or (ii) promoting, marketing or recommending to another party any transaction or matter addressed herein.
- PF2 does not provide accounting, tax or legal advice.

