Chapter SF
Standard Formulas for the Analysis of Mortgage-Backed Securities and Other Related Securities

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A. Computational Accuracy

Many common calculations for mortgage-related securities (yields, durations, prepayment rates, etc.) require the calculation of a large number of intermediate quantities (cash flows, principal balances, etc.). All intermediate calculations should be carried out to their full precision, preserving at least ten significant digits of accuracy. This will generally require double-precision computer arithmetic. The only quantities that should be assigned an integer variable type are those that represent whole numbers of days, months or years.

Only when all computations are complete should the final values be rounded for display. Results may be shown to any desired number of decimal places, provided that the last digit presented has been obtained by rounding and not by truncating the complete figure.

The numerical examples that appear throughout the document are intended to provide simple checks against improper implementation of the Standard Formulas, not an exhaustive set of benchmarks that would guarantee conformance.

B. Prepayments

1. Cash Flows

For a level-payment fixed-rate mortgage pool with gross weighted-average coupon C%, current weighted-average remaining term M months, and M_0-M months elapsed since origination, the *amortized loan balance* (as a fraction of par) is

$$\text{BAL} = \frac{1-\left(1+C/1200\right)^{-M}}{1-\left(1+C/1200\right)^{-M_0}}$$

and the scheduled gross monthly payment (also as a fraction of par) is

$$
\begin{aligned}
\text{GROSS MORTGAGE PAYMENT} &= \text{PRINCIPAL} + \text{INTEREST} \\
&= \left(\text{BAL}_1 - \text{BAL}_2\right) + \left(\text{BAL}_1 * C/1200\right) \\
&= \frac{C/1200}{1-\left(1+C/1200\right)^{-M_0}} .
\end{aligned}
$$

The net payment passed through to investors consists of the scheduled gross payment above, plus unscheduled prepayments, minus a servicing fee of $\text{BAL}_1 * S/1200$, where the servicing percentage (S) is the difference between the gross coupon (C) and the net pass-through coupon of the security.

The *pool factor* (F) expresses the principal remaining in the pool each month as a fraction of the original face amount. The *survival factor* (F/BAL) represents the fraction of $1.00 unit loans remaining in the pool from those originally present at issuance:

POOL FACTOR = SURVIVAL FACTOR * AMORTIZED LOAN BALANCE.

By convention, mortgage-related security analysis assumes that all prepayments are whole prepayments on $1.00 unit loans within the pool.

The cash flows of more complex mortgage securities (CMO bonds, Graduated-Payment Mortgages, Adjustable-Rate Mortgages, etc.) are governed by specific contractual features not addressed here.

Example: A mortgage pass-through is issued with a net coupon of 9.0%, a gross coupon of 9.5% and a term of 360 months. If prepayments for the first month are 0.00025022 (as a fraction of par), then the first cash flow paid to investors will consist of the following components:

(1) Scheduled Amortization   =   0.00049188,
(2) Unscheduled Prepayments   =   0.00025022,
(3) Gross Mortgage Interest   =   0.00791667,
(4) Servicing Fee   =   0.00041667,

Pass-Through Principal	=	(1) + (2)
	=	0.00074210,
Pass-Through Interest	=	(3) − (4)
	=	0.00750000,
Pass-Through Cash Flow	=	(1) + (2) + (3) − (4)
	=	0.00824210.

2. Mortgage Prepayment Models

The prepayment rate of a mortgage pool may be expressed in a number of different ways. These measures are equally valid, although a particular method may be more useful in a given instance.

a. The *SMM* (Single Monthly Mortality) rate of a mortgage pool is the percentage of the mortgage loans outstanding at the beginning of a month assumed to terminate during the month. That is, if in some month the initial and final *pool factors* are F_1 and F_2, respectively (as fractions of the original face amount), and the amortized loan balances are BAL_1 and BAL_2 (as fractions of par), then

$$F_2 = F_1 * \left(\frac{BAL_2}{BAL_1} \right) * \left(1 - \frac{SMM}{100} \right).$$

An equivalent means of specifying a one-month prepayment rate is to separate the factor drop for the month $(F_1 - F_2)$ into scheduled and unscheduled principal payments. If there were no unscheduled prepayments during the month, then the factor for the end of the month would have been

$$F_{sched} = F_1 \frac{BAL_2}{BAL_1} .$$

The quantity $F_1 - F_{sched}$ represents amortization for the month, and $F_{sched} - F_2$ represents early prepayment of principal. The one-month prepayment rate can then be defined as

$$SMM = 100 \frac{F_{sched} - F_2}{F_{sched}} .$$

b. The *CPR* (Conditional Prepayment Rate or Constant Prepayment Rate) model is similar to SMM, except that it expresses the prepayment percentage as an annually compounded rate:

$$\left(1 - \frac{SMM}{100}\right)^{12} = 1 - \frac{CPR}{100}.$$

The terms "CPR" and "Monthly CPR" have sometimes been used to express prepayment rates on a monthly basis equivalent to the SMM. This is not recommended, and in the present document, "CPR" will refer exclusively to the annualized prepayment rate defined in the equation above.

c. *The Standard Prepayment Model of The Bond Market Association* specifies a prepayment percentage for each month in the life of the underlying mortgages, expressed on an annualized basis. Thus, 100% PSA (Prepayment Speed Assumptions) assumes prepayment rates of 0.2% CPR in the first month following origination of the mortgage loans (not the pool) and an additional 0.2% CPR in each succeeding month until the 30th month. In the 30th month and beyond, 100% PSA assumes a fixed annual prepayment rate of 6.0% CPR. To calculate the prepayment rate for any specific multiple of PSA, adjust the annual prepayment rate at 100% PSA by that multiple. (For example, 200% PSA assumes prepayment rates equal to twice the CPRs from the 100% PSA model, on a pool-by-pool basis.) In general,

$$CPR = \min\left\{\frac{PSA}{100} * 0.2 * \max\left\{1, \min\left\{MONTH,\ 30\right\}\right\},\ 100\right\},$$

where MONTH refers to the accrual period during which the age of the mortgage loans increases from MONTH $-$ 1 to MONTH. If the loan age is computed as zero subsequent to pool-issue date, then for the purposes of the PSA calculations, MONTH equals 1 for all prior months. In the case of Freddie Mac and Fannie Mae pools with "same-month" loan concentrations greater than 50%, MONTH would equal 1 for the first two months of the pool. For Freddie Macs, these pools are identified by the WALA remaining at 0 for the first two months of the pool. For Fannie Maes, these pools are identified by the original WAM being one month greater than the original loan term for a given pool type. For example, an original WAM of 361 would be reported for a "CL" pool that has an original loan term of 360 months.

These CPRs can then be converted into SMMs according to the formula from part (b.) above.

For expositional purposes, AGE is defined as a point in time, whereas MONTH is defined as a span of time. Pool factors therefore are reported as of an AGE whereas prepayment rates are reported for a MONTH. When a mortgage loan is originated, AGE= 0. After MONTH=1, AGE = 1. The diagram below illustrates the distinction.

Month 1	Month 2	Month 3	Month 4	. . .

Age: 0   1   2   3   4 . . .
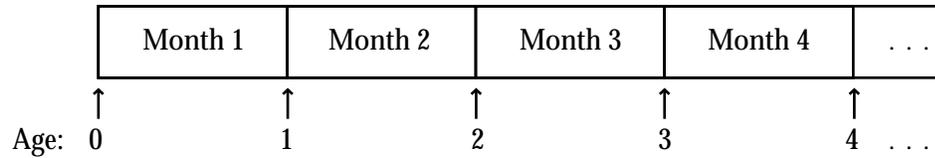
Mortgages in their first 30 months are commonly referred to as "new"; mortgages older than 30 months are considered "seasoned."

If the prepayment rate resulting from any of these calculations is either negative or unusually large, then there may be an error in one or both of the pool factors, or possibly in the coupon rate or term to maturity assumed for amortizing the mortgage balance. Such results must be taken with caution.

Example: Suppose that for a Ginnie Mae I 9.0% pass-through issued 3/1/88 with a remaining term of 359 months, the 6/1/89 and 7/1/89 pool factors were

$$F_1 = 0.85150625$$

and

$$F_2 = 0.84732282 \,,$$

respectively. How would one compute the prepayment speed for 6/89 using PSA?

The amortized loan balance was

$$BAL_1 = \frac{1-\left(1+9.5/1200\right)^{-344}}{1-\left(1+9.5/1200\right)^{-359}} = 0.99213300$$

on 6/1/89, and was

$$BAL_2 = \frac{1-\left(1+9.5/1200\right)^{-343}}{1-\left(1+9.5/1200\right)^{-359}} = 0.99157471$$

on 7/1/89, so with no June prepayments the 7/1/89 pool factor would have been

$$F_{sched} = F_1 \frac{BAL_2}{BAL_1} = 0.85102709.$$

This allows us to calculate

$$\text{Amortization} = F_1 - F_{\text{sched}} = 0.00047916,$$

$$\text{Prepayments} = F_{\text{sched}} - F_2 = 0.00370427,$$

$$\text{SMM} = 100 \, \frac{0.00370427}{0.85102709} = 0.435270\%,$$

$$\text{CPR} = 100 \left[1 - \left(1 - \frac{\text{SMM}}{100} \right)^{12} \right] = 5.1000\%.$$

With respect to the underlying 360-month mortgages, 2/88 was month 1, so 6/89 counts as month 17. Therefore,

$$\text{PSA} = 100 * \frac{\text{CPR}}{\min \left\{ 0.2 * \text{MONTH } 6.0 \right\}} = 150.00\%.$$

Prepayment Rate Conversion Table

SMM	CPR	PSA*	SMM	CPR	PSA*	SMM	CPR	PSA*	SMM	CPR	PSA*
.05	0.6	10	2.30	24.4	406	4.55	42.8	714	6.80	57.0	951
.10	1.2	20	2.35	24.8	414	4.60	43.2	719	6.85	57.3	955
.15	1.8	30	2.40	25.3	421	4.65	43.5	725	6.90	57.6	960
.20	2.4	40	2.45	25.7	429	4.70	43.9	731	6.95	57.9	964
.25	3.0	49	2.50	26.2	437	4.75	44.2	737	7.00	58.1	969
.30	3.5	59	2.55	26.7	444	4.80	44.6	743	7.05	58.4	973
.35	4.1	69	2.60	27.1	452	4.85	44.9	749	7.10	58.7	978
.40	4.7	78	2.65	27.6	459	4.90	45.3	755	7.15	58.9	982
.45	5.3	88	2.70	28.0	467	4.95	45.6	760	7.20	59.2	987
.50	5.8	97	2.75	28.4	474	5.00	46.0	766	7.25	59.5	991
.55	6.4	107	2.80	28.9	481	5.05	46.3	772	7.30	59.7	996
.60	7.0	116	2.85	29.3	489	5.10	46.6	777	7.35	60.0	1000
.65	7.5	125	2.90	29.8	496	5.15	47.0	783	7.40	60.3	1004
.70	8.1	135	2.95	30.2	503	5.20	47.3	789	7.45	60.5	1008
.75	8.6	144	3.00	30.6	510	5.25	47.6	794	7.50	60.8	1013
.80	9.2	153	3.05	31.0	517	5.30	48.0	800	7.55	61.0	1017
.85	9.7	162	3.10	31.5	524	5.35	48.3	805	7.60	61.3	1021
.90	10.3	171	3.15	31.9	532	5.40	48.6	811	7.65	61.5	1025
.95	10.8	180	3.20	32.3	539	5.45	49.0	816	7.70	61.8	1029
1.00	11.4	189	3.25	32.7	546	5.50	49.3	821	7.75	62.0	1034
1.05	11.9	198	3.30	33.1	552	5.55	49.6	827	7.80	62.3	1038
1.10	12.4	207	3.35	33.6	559	5.60	49.9	832	7.85	62.5	1042
1.15	13.0	216	3.40	34.0	566	5.65	50.2	837	7.90	62.8	1046
1.20	13.5	225	3.45	34.4	573	5.70	50.6	843	7.95	63.0	1050
1.25	14.0	234	3.50	34.8	580	5.75	50.9	848	8.00	63.2	1054
1.30	14.5	242	3.55	35.2	587	5.80	51.2	853	8.05	63.5	1058
1.35	15.0	251	3.60	35.6	593	5.85	51.5	858	8.10	63.7	1062
1.40	15.6	259	3.65	36.0	600	5.90	51.8	863	8.15	63.9	1066
1.45	16.1	268	3.70	36.4	607	5.95	52.1	868	8.20	64.2	1070
1.50	16.6	276	3.75	36.8	613	6.00	52.4	873	8.25	64.4	1074
1.55	17.1	285	3.80	37.2	620	6.05	52.7	879	8.30	64.6	1077
1.60	17.6	293	3.85	37.6	626	6.10	53.0	884	8.35	64.9	1081
1.65	18.1	302	3.90	38.0	633	6.15	53.3	889	8.40	65.1	1085
1.70	18.6	310	3.95	38.3	639	6.20	53.6	893	8.45	65.3	1089
1.75	19.1	318	4.00	38.7	645	6.25	53.9	898	8.50	65.6	1093
1.80	19.6	326	4.05	39.1	652	6.30	54.2	903	8.55	65.8	1096
1.85	20.1	335	4.10	39.5	658	6.35	54.5	908	8.60	66.0	1100
1.90	20.6	343	4.15	39.9	664	6.40	54.8	913	8.65	66.2	1104
1.95	21.0	351	4.20	40.2	671	6.45	55.1	918	8.70	66.5	1108
2.00	21.5	359	4.25	40.6	677	6.50	55.4	923	8.75	66.7	1111
2.05	22.0	367	4.30	41.0	683	6.55	55.6	927	8.80	66.9	1115
2.10	22.5	375	4.35	41.4	689	6.60	55.9	932	8.85	67.1	1118
2.15	23.0	383	4.40	41.7	695	6.65	56.2	937	8.90	67.3	1122
2.20	23.4	390	4.45	42.1	701	6.70	56.5	942	8.95	67.5	1126
2.25	23.9	398	4.50	42.5	708	6.75	56.8	946	9.00	67.8	1129

SMM – Single Monthly Mortality (monthly prepayment rate in percent)

CPR – Conditional Prepayment Rate (annual prepayment rate in percent)

PSA – Standard Prepayment Model of The Bond Market Association (percentage of PSA [Prepayment Speed Assumption] model: 100% = 6% CPR)

* **PSA CONVERSION IS ONLY VALID AFTER THE 29TH MONTH OF MORTGAGE LIFE.**

Conversion of One-Month PSA to SMM Based on Months after Mortgage Origination

Months After Origination	PSA:50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
1	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.17
2	0.02	0.03	0.05	0.07	0.08	0.10	0.12	0.13	0.15	0.17	0.19	0.20	0.22	0.24	0.25	0.27	0.29	0.31	0.32	0.34
3	0.03	0.05	0.08	0.10	0.13	0.15	0.18	0.20	0.23	0.25	0.28	0.31	0.33	0.36	0.38	0.41	0.44	0.46	0.49	0.51
4	0.03	0.07	0.10	0.13	0.17	0.20	0.24	0.27	0.31	0.34	0.37	0.41	0.44	0.48	0.51	0.55	0.59	0.62	0.66	0.69
5	0.04	0.08	0.13	0.17	0.21	0.25	0.30	0.34	0.38	0.43	0.47	0.51	0.56	0.60	0.65	0.69	0.74	0.78	0.83	0.87
6	0.05	0.10	0.15	0.20	0.25	0.31	0.36	0.41	0.46	0.51	0.57	0.62	0.67	0.73	0.78	0.84	0.89	0.95	1.00	1.06
7	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54	0.60	0.67	0.73	0.79	0.86	0.92	0.98	1.05	1.12	1.18	1.25
8	0.07	0.13	0.20	0.27	0.34	0.41	0.48	0.55	0.62	0.69	0.76	0.84	0.91	0.98	1.06	1.13	1.21	1.29	1.36	1.44
9	0.08	0.15	0.23	0.31	0.38	0.46	0.54	0.62	0.70	0.78	0.86	0.95	1.03	1.12	1.20	1.29	1.37	1.46	1.55	1.64
10	0.08	0.17	0.25	0.34	0.43	0.51	0.60	0.69	0.78	0.87	0.97	1.06	1.15	1.25	1.35	1.44	1.54	1.64	1.74	1.84
11	0.09	0.19	0.28	0.37	0.47	0.57	0.67	0.76	0.86	0.97	1.07	1.17	1.28	1.38	1.49	1.60	1.71	1.82	1.93	2.05
12	0.10	0.20	0.31	0.41	0.51	0.62	0.73	0.84	0.95	1.06	1.17	1.29	1.40	1.52	1.64	1.76	1.88	2.01	2.13	2.26
13	0.11	0.22	0.33	0.44	0.56	0.67	0.79	0.91	1.03	1.15	1.28	1.40	1.53	1.66	1.79	1.92	2.06	2.20	2.34	2.48
14	0.12	0.24	0.36	0.48	0.60	0.73	0.86	0.98	1.12	1.25	1.38	1.52	1.66	1.80	1.95	2.09	2.24	2.39	2.54	2.70
15	0.13	0.25	0.38	0.51	0.65	0.78	0.92	1.06	1.20	1.35	1.49	1.64	1.79	1.95	2.10	2.26	2.42	2.59	2.76	2.93
16	0.13	0.27	0.41	0.55	0.69	0.84	0.98	1.13	1.29	1.44	1.60	1.76	1.92	2.09	2.26	2.43	2.61	2.79	2.97	3.16
17	0.14	0.29	0.44	0.59	0.74	0.89	1.05	1.21	1.37	1.54	1.71	1.88	2.06	2.24	2.42	2.61	2.80	3.00	3.20	3.40
18	0.15	0.31	0.46	0.62	0.78	0.95	1.12	1.29	1.46	1.64	1.82	2.01	2.20	2.39	2.59	2.79	3.00	3.21	3.43	3.65
19	0.16	0.32	0.49	0.66	0.83	1.00	1.18	1.36	1.55	1.74	1.93	2.13	2.34	2.54	2.76	2.97	3.20	3.43	3.66	3.91
20	0.17	0.34	0.51	0.69	0.87	1.06	1.25	1.44	1.64	1.84	2.05	2.26	2.48	2.70	2.93	3.16	3.40	3.65	3.91	4.17
21	0.18	0.36	0.54	0.73	0.92	1.12	1.32	1.52	1.73	1.95	2.17	2.39	2.62	2.86	3.10	3.35	3.61	3.88	4.15	4.44
22	0.19	0.37	0.57	0.76	0.97	1.17	1.38	1.60	1.82	2.05	2.28	2.52	2.77	3.02	3.28	3.55	3.83	4.11	4.41	4.72
23	0.19	0.39	0.59	0.80	1.01	1.23	1.45	1.68	1.91	2.15	2.40	2.66	2.92	3.19	3.46	3.75	4.05	4.36	4.67	5.01
24	0.20	0.41	0.62	0.84	1.06	1.29	1.52	1.76	2.01	2.26	2.52	2.79	3.07	3.35	3.65	3.96	4.27	4.60	4.95	5.30
25	0.21	0.43	0.65	0.87	1.11	1.35	1.59	1.84	2.10	2.37	2.64	2.93	3.22	3.53	3.84	4.17	4.51	4.86	5.23	5.61
26	0.22	0.44	0.67	0.91	1.15	1.40	1.66	1.92	2.20	2.48	2.77	3.07	3.38	3.70	4.04	4.38	4.75	5.12	5.52	5.93
27	0.23	0.46	0.70	0.95	1.20	1.46	1.73	2.01	2.29	2.59	2.89	3.21	3.54	3.88	4.23	4.60	4.99	5.40	5.82	6.27
28	0.24	0.48	0.73	0.98	1.25	1.52	1.80	2.09	2.39	2.70	3.02	3.35	3.70	4.06	4.44	4.83	5.24	5.68	6.13	6.61
29	0.24	0.50	0.76	1.02	1.30	1.58	1.87	2.18	2.49	2.81	3.15	3.50	3.87	4.25	4.65	5.06	5.50	5.97	6.46	6.97
30	0.25	0.51	0.78	1.06	1.35	1.64	1.95	2.26	2.59	2.93	3.28	3.65	4.04	4.44	4.86	5.30	5.77	6.27	6.79	7.35

Find the column corresponding to the ONE-MONTH PSA, and the row corresponding to the number of months after origination of the underlying mortgages. The intersection of column and row gives the one-month equivalent SMM.

Do not use this table for 3-month, 1-year, or to-date PSA, as results will be inaccurate.

Results will be imprecise to the extent that mortgages in a pool have differing ages.

3. Average Prepayment Rates for Mortgage Pools

Often it is necessary to calculate an average prepayment rate for a single mortgage pool or an aggregation of pools (such as those backing a particular CMO) over a specific historical period.* Regardless of which particular prepayment model is chosen, the proper speed is that which, if applied separately to the underlying mortgages over the entire period, would result in the actual aggregate balance recorded at the end of the period. Pools which were not present at the start of the period should be excluded from the calculation entirely, as should any pools with incorrect or missing factors at the start or end of the period.**

For certain security types, including many CMOs backed by classes of two or more other CMOs, and many whole loan pass-throughs with principal/interest stripping, the cash flows and principal balances are not derived from pro rata shares of mortgage pass-throughs, and no single prepayment rate or aggregate balance is sufficient to characterize the security cash flows. In these cases, it is generally not meaningful to define an average prepayment rate, and none should be reported. Instead, the average prepayment rate for each underlying CMO class should be reported individually, or if not practical, then summarized together as a range (lowest and highest).

Unless otherwise specified, amortization of updated fixed-rate mortgage pools should be based exclusively on the most recent weighted average maturity information (WAM or WARM) and prepayment calculations on the most recent weighted average loan age (WALA) information provided by the issuer or guarantor at the time the calculation is performed. (See Section D.) Thus, it is not necessary to save prior information for these pools once updated values become available, nor is it necessary to recompute previously calculated prepayment rates. This method, while computationally simple, will produce different results for the same time period when calculations are made at different times. Thus, the January 1991 PSA rate for a pool may be different when calculated in February 1992 than when first computed in February 1991, because the WAM and/or the WALA may not have decreased and/or increased, respectively, by exactly 12 months. Individual firms may use either method to report historical prepayment rates. This decision affects only calculations of historical prepayment rates; projected cash flows, yields, average lives, and other measures are not affected, since forward projections always use the most recently available data.

For certain security types, such as Fannie Mae Trust strips and Megapools, multiple pass-through pools are actually combined into a new pass-through security (an aggregate pool for which the issuer reports monthly factors). Even in these cases, historical and projected prepayments should be calculated on the basis of the most detailed pool information available for the underlying mortgages.

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* For a mortgage security (including but not limited to CMOs, REMICs, Megapools and strips), the phrase "prepayment rate since issue" can refer to the time since issuance of either the underlying pass-through pools or the mortgage security itself. Market participants should therefore distinguish between "prepayment rate since pool issue" and "prepayment rate since deal issue." The precise wording is left to the user's discretion, so long as the intent is clear.

** Note that an aggregate calculation for "prepayment rate since pool issue" generally does not refer to a historical period with a uniform starting date. Therefore, the only pools that should be excluded from this particular calculation are those with incorrect or missing factors at the end of the period.

With the Standard Prepayment Model, these calculations will generally require an iterative trial-and-error procedure, even for a single pool; the aggregate PSA speed should not be computed as a weighted average of individual pool speeds. Likewise, it is generally not accurate to apply an average prepayment speed to a hypothetical single pool having the aggregate WAC and WAM of the pools to be analyzed. At best, these calculations can provide a first iteration toward the correct value. Average prepayment rates that do not meet the precise specifications of the preceding paragraphs should be acknowledged as nonstandard approximations.

Iteration is not necessary for computing average prepayment rates in terms of SMM or CPR. Instead, one should sum the scheduled balances for the loans at the end of the period, computed as if there were no prepayments during the period. The average prepayment rate for the aggregation is then

$$\text{SMM}_{avg} = 100 \left[1 - \left(\frac{\text{FINAL AGGREG. BAL}_{actual}}{\text{FINAL AGGREG. BAL}_{sched}} \right)^{\frac{1}{\text{months in period}}} \right] ,$$

or

$$\text{CPR}_{avg} = 100 \left[1 - \left(\frac{\text{FINAL AGGREG. BAL}_{actual}}{\text{FINAL AGGREG. BAL}_{sched}} \right)^{\frac{12}{\text{months in period}}} \right] .$$

Finally, for the special case in which all the mortgages in the sample being considered are fully seasoned at the start of the period, even the aggregate PSA speed can be computed without iteration:

$$\text{PSA}_{avg} = 100 * \frac{\text{CPR}_{avg}}{6.0} .$$

Example: Consider two Ginnie Mae I 9.0% pass-throughs with the following characteristics:

	Pool 1	Pool 2
Original Face:	$1,000,000	$2,000,000
Original Remaining Term:	358 mo	360 mo
Origination Date:	4/1/88	12/1/88
1/1/89 Factor:	0.86925218	0.99950812
7/1/89 Factor:	0.84732282	0.98290230

To determine the average prepayment rate of the two pools over the first six months of 1989, first compute the actual final balance,

$$1,000,000\,(0.84732282) + 2,000,000\,(0.98290230) \;=\; 2,813,127.42\,,$$

and the scheduled final balance,

$$1,000,000\,(0.86925218)\;\frac{1-(1+9.5/1200)^{-343}}{1-(1+9.5/1200)^{-349}}$$

$$+\;2,000,000\,(0.99950812)\;\frac{1-(1+9.5/1200)^{-353}}{1-(1+9.5/1200)^{-359}} \;=\; 2,859,330.23.$$

Then,

$$\mathrm{SMM}_{avg} \;=\; 100\left[1-\left(\frac{2,813,127.42}{2,859,330.23}\right)^{\frac{1}{6}}\right] \;=\; 0.271142\%\,,$$

$$\mathrm{CPR}_{avg} \;=\; 100\left[1-\left(\frac{2,813,127.42}{2,859,330.23}\right)^{\frac{12}{6}}\right] \;=\; 3.2056\%\,,$$

and, by iterative trial-and-error,

$$\mathrm{PSA}_{avg} \;=\; 212.02\%\,.$$

4. ABS Prepayment Rates for Asset Pools

The ABS model defines an increasing sequence of monthly prepayment rates (SMM, the percentage of remaining loans that prepay each month), which corresponds to a constant absolute level of loan prepayments in all future periods. For a pool of new loans, the SMM sequence for X% ABS is equivalent to the prepayment each month of X% of the loans originally in the pool. For a pool of seasoned loans, however, this interpretation of the SMM sequence is generally not valid. To avoid possible confusion, the ABS speed and the age of the underlying loans (not the pool) should always be converted directly into a sequence of SMM rates according to the formula

$$\mathrm{SMM} \;=\; \frac{100*\mathrm{ABS}}{100-\mathrm{ABS}*(\mathrm{MONTH}-1)}.$$

If desired, one can then convert these SMM rates into CPR or PSA according to the usual formulas. (See Section B.2.)

For purposes of describing an empirical prepayment pattern over a selected historical period, the appropriate ABS speed is the one whose monthly prepayment rates give the correct cumulative paydown for the period. The following formula provides the correct historical ABS speed for any time interval in which the loan age, pool factor and amortized loan balance (as a fraction of par) changed from AGE_1, F_1, BAL_1 to AGE_2, F_2, BAL_2:

$$ABS = 100 \frac{\left(F_1/F_2\right)-\left(BAL_1/BAL_2\right)}{AGE_2\left(F_1/F_2\right)-AGE_1\left(BAL_1/BAL_2\right)}.$$

The size of the pool at origination is not required. BAL may be calculated as in Section B.1.

Example: For a pool of 36-month car loans issued 1/1/89 with an original WAM of 34 months, a prepayment speed of 2% ABS for 9/89 would correspond to

$$SMM = \frac{100 * 2}{100 - 2 * \left(11 - 1\right)} = 2.5000\%.$$

If the gross WAC of the pool is 10.00% and the 10/1/89 factor is 0.64140448, then the average prepayment speed over the nine-month life of the pool is

$$ABS = 100 \frac{\left(\dfrac{1.00000000}{0.64140448}\right) - \left(\dfrac{1-\left(1+10/1200\right)^{-34}}{1-\left(1+10/1200\right)^{-25}}\right)}{11\left(\dfrac{1.00000000}{0.64140448}\right) - 2\left(\dfrac{1-\left(1+10/1200\right)^{-34}}{1-\left(1+10/1200\right)^{-25}}\right)} = 1.7000\%.$$

Conversion of ABS to SMM

Months after Origination	0.50 ABS	0.75 ABS	1.00 ABS	1.25 ABS	1.50 ABS	1.75 ABS	2.00 ABS
1	0.50	0.75	1.00	1.25	1.50	1.75	2.00
2	0.50	0.76	1.01	1.27	1.52	1.78	2.04
3	0.51	0.76	1.02	1.28	1.55	1.81	2.08
4	0.51	0.77	1.03	1.30	1.57	1.85	2.13
5	0.51	0.77	1.04	1.32	1.60	1.88	2.17
6	0.51	0.78	1.05	1.33	1.62	1.92	2.22
7	0.52	0.79	1.06	1.35	1.65	1.96	2.27
8	0.52	0.79	1.08	1.37	1.68	1.99	2.33
9	0.52	0.80	1.09	1.39	1.70	2.03	2.38
10	0.52	0.80	1.10	1.41	1.73	2.08	2.44
11	0.53	0.81	1.11	1.43	1.76	2.12	2.50
12	0.53	0.82	1.12	1.45	1.80	2.17	2.56
13	0.53	0.82	1.14	1.47	1.83	2.22	2.63
14	0.53	0.83	1.15	1.49	1.86	2.27	2.70
15	0.54	0.84	1.16	1.52	1.90	2.32	2.78
16	0.54	0.85	1.18	1.54	1.94	2.37	2.86
17	0.54	0.85	1.19	1.56	1.97	2.43	2.94
18	0.55	0.86	1.20	1.59	2.01	2.49	3.03
19	0.55	0.87	1.22	1.61	2.05	2.55	3.13
20	0.55	0.87	1.23	1.64	2.10	2.62	3.23
21	0.56	0.88	1.25	1.67	2.14	2.69	3.33
22	0.56	0.89	1.27	1.69	2.19	2.77	3.45
23	0.56	0.90	1.28	1.72	2.24	2.85	3.57
24	0.56	0.91	1.30	1.75	2.29	2.93	3.70
25	0.57	0.91	1.32	1.79	2.34	3.02	3.85
26	0.57	0.92	1.33	1.82	2.40	3.11	4.00
27	0.57	0.93	1.35	1.85	2.46	3.21	4.17
28	0.58	0.94	1.37	1.89	2.52	3.32	4.35
29	0.58	0.95	1.39	1.92	2.59	3.43	4.55
30	0.58	0.96	1.41	1.96	2.65	3.55	4.76
31	0.59	0.97	1.43	2.00	2.73	3.68	5.00
32	0.59	0.98	1.45	2.04	2.80	3.83	5.26
33	0.60	0.99	1.47	2.08	2.88	3.98	5.56
34	0.60	1.00	1.49	2.13	2.97	4.14	5.88
35	0.60	1.01	1.52	2.17	3.06	4.32	6.25
36	0.61	1.02	1.54	2.22	3.16	4.52	6.67
37	0.61	1.03	1.56	2.27	3.26	4.73	7.14
38	0.61	1.04	1.59	2.33	3.37	4.96	7.69
39	0.62	1.05	1.61	2.38	3.49	5.22	8.33
40	0.62	1.06	1.64	2.44	3.61	5.51	9.09
41	0.63	1.07	1.67	2.50	3.75	5.83	10.00
42	0.63	1.08	1.69	2.56	3.90	6.19	11.11
43	0.63	1.09	1.72	2.63	4.05	6.60	12.50
44	0.64	1.11	1.75	2.70	4.23	7.07	14.29
45	0.64	1.12	1.79	2.78	4.41	7.61	16.67
46	0.65	1.13	1.82	2.86	4.62	8.24	20.00
47	0.65	1.15	1.85	2.94	4.84	8.97	25.00
48	0.65	1.16	1.89	3.03	5.08	9.86	33.33
49	0.66	1.17	1.92	3.13	5.36	10.94	50.00
50	0.66	1.19	1.96	3.23	5.66	12.28	100.00

C. Defaults

The following description of default analysis is intended only for the analysis of credit-sensitive securities (e.g., subordinated securities such as B-pieces, mezzanines, etc.). Standard prepayment analysis projects cash flows assuming that unscheduled payoffs are composed of both voluntary prepayments and defaults. When the following default methodology is being used, voluntary pre-payments and defaults are projected separately.

1. Mortgage Cash Flows with Defaults: Description of Basic Concepts

A loan in default is defined as one that no longer pays principal and interest and then remains delinquent until liquidated. Thus, delinquencies that cure are *not* included in this computation.

When a loan first goes into default, it is included in New Defaults for the given month. New Defaults are projected forward using the Monthly Default Rate and the prior month's Performing Balance before subtracting the current month's scheduled amortization.

The prior month's Performing Balance is the total balance of all loans that have continued to make full monthly payments through the prior month. These, plus Loans in Foreclosure, are the loans that survive into the current month. In the current month, they will either default (New Defaults), prepay (Voluntary Prepayments), or merely amortize. As with New Defaults, Voluntary Prepayments are also projected forward using the prior month's Performing Balance. However, Voluntary Prepayments are computed after the current month's Scheduled Amortization is subtracted.

Expected Amortization in a given month is the amortized principal that is expected to be received from all existing loans, including those currently in default that have not yet been liquidated (Loans in Foreclosure). If there are New Defaults, then Amortization from Defaults is the amount of principal that is not received from the borrowers, and Actual Amortization is the amount of principal that is actually received from the borrowers. (A loan's original amortization schedule continues to be computed even while it is in foreclosure.)

Analogously, Expected Interest in a given month is interest due on the balance of all existing loans (including Loans in Foreclosure). Interest Lost is the amount of interest not received, and Actual Interest is Expected Interest minus Interest Lost.

Usually (but not always), Servicer Advances are made. If principal and interest are advanced, the amount of principal advanced each month is equal to Amortization from Defaults, and the amount of interest advanced exactly compensates for Lost Interest. The result is that investors receive all Expected Amortization and Expected Interest regardless of the amount of New Defaults and Loans in Foreclosure. New Defaults, however, are still calculated based on the prior month's Performing Balance only.

Liquidation of New Defaults is assumed to occur after a fixed user-specified number of months (Months to Liquidation). If the liquidation results in a loss, the loss is taken in the month of liquidation, treated as a loss of principal (Principal Loss), and the amount of the loss is based on the Loss Severity and the unpaid principal balance of New Defaults when the loan first went into default.

2.   **Specifying Mortgage Default Assumptions: Standards and Definitions**

Introduction

The prepayment calculations discussed in Section B.2. derive monthly prepayment rates (SMM) from a vector of pool factors (F) over time. In other words, a prepayment rate is derived from actual performance data.

The Default Standards are intended to be used for *projecting* cash flows, *not* for deriving historical default rates from actual performance data. In other words, we start with a Monthly Default Rate (MDR) and use it to calculate New Defaults (NEW DEF) in a given month.

Default Analysis Standards and Definitions

a.   Default analysis is intended to model defaults only, not delinquencies. Delinquent loans that are cured will not be part of this analysis. For this purpose, a loan in default is one that no longer pays principal and interest and then remains delinquent until liquidated.

b.   Default analysis specifies default rates, not loss rates. Loss rates (i.e., "Loss Severities") are specified separately.

c.   The default rate in a given month is specified as a percentage of the aggregate *performing* balance of all loans still outstanding at the end of the prior month, *before* taking into account the current month's scheduled amortization.

d.   Prepayment rates and default rates are specified *separately.* Total unscheduled principal received will then be the sum of Voluntary Prepayments and Principal Recoveries from liquidations.

e.   The prepayment rate in a given month is specified as a percentage of the aggregate *performing* balance of all loans still outstanding at the end of the prior month, after removing the *current* month's scheduled amortization. Prepayments will still be deemed to have a scheduled component, whereas the default balance is computed *before* taking into account the current month's amortization. Voluntary Prepayments are constrained by the following condition: Actual Amortization plus New Defaults plus Voluntary Prepayments cannot exceed the prior period's Performing Balance. (If they do, then cap Voluntary Prepayments such that the current period's Performing Balance is zero.)

f.   When performing default analysis, in addition to specifying default rates, the following assumptions *must* be specified:

   ● Time to Liquidation after the loan first misses a payment ("0 months to Liquidation" means that liquidation proceeds are received in the month the loan first becomes delinquent).
   ● Loss Severity or Loss Severity curve. "Loss Severity" is defined as a loss amount divided by the principal balance of the loan at the time it goes into default. A "Loss Severity curve" is a vector of different loss severities over time.
   ● Whether or not P&I are advanced in the structure. If P&I are advanced, they are assumed to be advanced every month through to liquidation.

g. The Loss Severity is applied to the balance of the loan as of the month it first went into default. The loss rate should include all costs: foreclosure costs, servicer interest advances and principal advances.

If P&I are being advanced, the maximum principal amount that can be passed through to investors when the loan is finally liquidated is the balance of the loan when it became delinquent minus any principal that has been advanced.

If P&I are not being advanced, then 0% loss severity (i.e., 100% recovery) will not include recovery of unpaid interest unless explicitly specified to the contrary.

Note: With this definition and "Time to Liquidation" as defined above, 0 months to liquidation with 0% Loss Severity will produce the same total principal cash flow as Voluntary Prepayment, except that Scheduled Amortization is *not* broken out separately. (Also, if P&I are not being advanced, the default cash flow will *not* include the final month's interest.)

h. Because defaults are being specified as a percentage of the then outstanding Performing Balance, a higher prepayment assumption at a given default rate will result in lower cumulative defaults. Therefore, a table *must* be produced that shows cumulative defaults in a matrix format using the different default and prepayment rates employed in the analysis.

i. A similar matrix of loss amounts should also be produced using the Loss Severity assumption.

3. Standard Formulas for Computing Mortgage Cash Flows with Defaults

The following formulas detail the calculations:

PERF BAL(i)   = Performing Balance in month i

$$= \text{PERF BAL}(i-1) - \text{NEW DEF}(i) - \text{VOL PREPAY}(i) - \text{ACT AM}(i)$$

NEW DEF(i)   = New Defaults

$$= \text{PERF BAL}(i-1) * \text{MDR}(i)$$

FCL(i)   = Loans in Foreclosure

$$= (\text{NEW DEF}(i) + \text{FCL}(i-1) - \text{ADB}(i)) - \text{AM DEF}(i)$$

SCH AM(i)   = Amortization Schedule assuming no prepayments

EXP AM(i)   = Expected Amortization

$$= (\text{PERF BAL}(i-1) + \text{FCL}(i-1) - \text{ADB}(i)) * [1 - \text{SCH AM}(i)/\text{SCH AM}(i-1)]$$

VOL PREPAY(i)   = Voluntary Prepayments

$$= \text{PERF BAL}(i-1) * [\text{SCH AM}(i)/\text{SCH AM}(i-1)] * \text{SMM}(i)$$

AM DEF(i) = Amortization from Defaults

If P&I are advanced:

= (NEW DEF(i) + FCL(i–1) – ADB(i)) ∗ [1–SCH AM(i)/SCH AM(i–1)]

or if P&I are not advanced:

= 0

ACT AM(i) = Actual Amortization

= (PERF BAL(i–1) – NEW DEF(i)) ∗ [1 – SCH AM(i)/SCH AM(i–1)]

EXP INT(i) = Expected Interest

= (PERF BAL(i–1) + FCL(i–1)) ∗ Net Mortgage Rate

LOST INT(i) = Interest Lost

= (NEW DEF(i) + FCL(i–1)) ∗ Net Mortgage Rate

ACT INT(i) = Actual Interest

= EXP INT(i) – LOST INT(i) = (PERF BAL(i–1) – NEW DEF(i))

∗ Net Mortgage Rate

PRIN RECOV(i) = Principal Recovery

= MAX [ADB(i) – PRIN LOSS(i) ; 0]

PRIN LOSS(i) = Principal Loss

= MIN [NEW DEF(i – months until recovery) ∗ Severity Rate ; ADB(i)]

ADB(i) = Amortized Default Balance in Recovery Month

If P&I are advanced:

= NEW DEF(i – months until recovery)

∗ [SCH AM(i–1)/SCH AM(i–1–months until recovery)]

or if P&I are not advanced:

= NEW DEF(i – months until recovery) ∗ 1

MDR(i) = Monthly Default Rate

SMM(i) = Monthly Prepayment Rate

Notes for clarification:

a.   "New Defaults" are the product of the default rate and prior period's Performing Balance.

b.   "Voluntary Prepayments" are the product of the prepayment rate and the prior period's Performing Balance, minus expected amortization from performing balance.

c.   Voluntary Prepayments and New Defaults are constrained by the following condition: Actual Amortization + New Defaults + Voluntary Prepayments cannot exceed the prior period's Performing Balance. (See Section C. 2.e.)

d.   "Expected Amortization" is computed from the sum of the prior period's Performing Balance and Loans in Foreclosure.

e.   Loans in Foreclosure do not include any loans that are liquidated in the current month.

f.   Expected Amortization and Amortization from Defaults are not computed for loans in their liquidation month. (This is a consequence of (d) and (e).)

g.   "Actual Amortization" is computed based on the prior period's Performing Balance minus New Defaults.

h.   Principal Recovery is constrained by the following condition:

    If Amortization from Defaults is advanced, the maximum Principal Recovery amount is the loan balance when the loan went into foreclosure minus the cumulative amortization advanced until the loan was liquidated (i.e., the Amortized Default Balance in the liquidation month). (See Section C. 2.g.)

i.   Principal Loss is constrained by the following condition:

    If Amortization from Defaults is advanced, the maximum Principal Loss is the Amortized Default Balance in the liquidation month.

j.   Default rate is set to 0 for the last n months before the scheduled final maturity of the pool where n = Time to Liquidation.

4.   **The Standard Default Assumption (SDA)**

A Standard Default Assumption ("100% SDA") for performing default analysis will have the following characteristics:

a.   Rise from 0 to "peak" during the first 30 months of mortgage age;

b.   Remain constant at peak value for the next 30 months (i.e., months 30 to 60 are at peak value);

c.   Decline from "peak" to "tail" over the next 60 months (i.e., decline begins in month 61 and reaches tail value in month 120);

d.   Remain constant at "tail" value for the remaining life of the pool (except for the last n months, when the default rate will be 0. n = Time to Liquidation); and

e.   Reach a default peak of 0.60% per annum and decline to a default tail of 0.03% per annum.

f.   To adjust the Standard Default Assumption rate for any specific multiple of SDA, adjust the annual default rate at 100% SDA by that multiple. (For example, 200% SDA assumes a default rate equal to twice the annual rates specified by 100% SDA.)

g.   When implementing default percentages, the annual default rates must be converted to Monthly Default Rates according to the following formula:

$$\text{MDR} = \text{Monthly Default Rate} = 100 * (1 - (1 - (\text{Annual Default Rate}/100))^{1/12}$$
$$\text{(in percent)}$$

The following table illustrates the default matrix that must be produced as discussed in Section C.2.h. For example, 100% SDA would result in approximately 2.78% cumulative defaults over the life of a pool of new 8%, 30-year mortgages that also prepay at 150% PSA.

		% SDA					
		50	100	150	200	250	300
	100	1.56	3.09	4.59	6.08	7.53	8.97
	125	1.47	2.92	4.35	5.76	7.14	8.51
	150	1.40	2.78	4.13	5.47	6.79	8.08
	175	1.33	2.64	3.93	5.20	6.45	7.69
% PSA	200	1.26	2.51	3.74	4.95	6.14	7.32
	250	1.15	2.28	3.40	4.50	5.59	6.66
	300	1.05	2.08	3.10	4.11	5.10	6.08
	400	0.88	1.74	2.60	3.45	4.29	5.12
	500	0.74	1.48	2.21	2.93	3.64	4.35

100% SDA is represented graphically as follows:

Annualized Default Rate
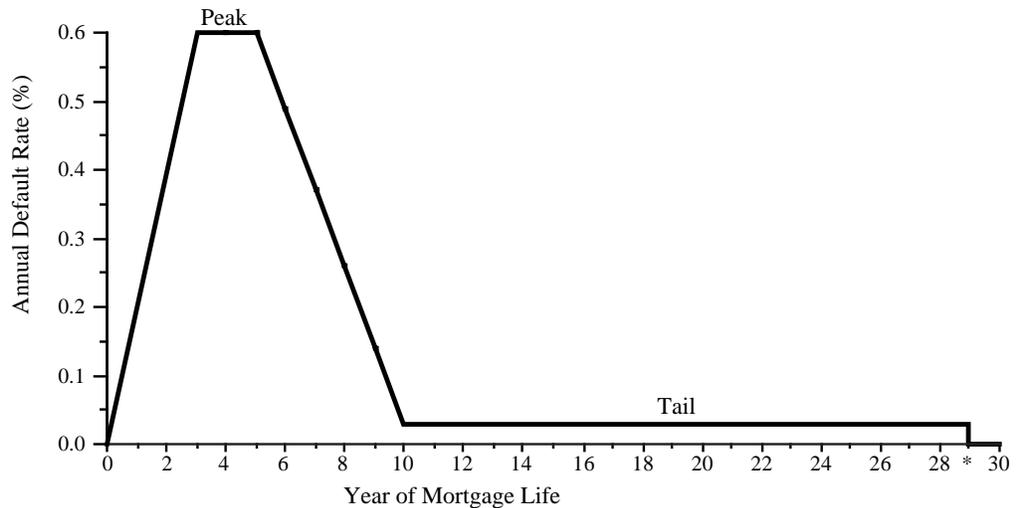
* Last 12 months are at a 0% default rate assuming 12 months to liquidation for 30-year loans. (See Section C.3.j.)

5. Use of the SDA for Products Other Than 30-Year Conventional Mortgages

The SDA was designed for use with fully amortizing residential mortgages with a term of at least 15 years. It was not intended to be used with other securitized products, e.g., balloon mortgages, commercial mortgages, home equity loans or any nonmortgage assets such as auto loans and credit card receivables.

6. Numerical Examples of SDA

Sample Cash Flows

The following two sample cash-flow tables were computed using new 30-year loans with an 8% WAC, 12-month recovery period, 20 percent loss severity and servicer advances. Further, Cash Flow A illustrates 1% Monthly Prepayments (1% SMM) with a 1% Monthly Default Rate (1% MDR), and Cash Flow B illustrates 150% PSA Prepayments with 100% SDA.

Standard Default Methodology

Cash Flow A

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	1% SMM	Recover after	12 months (time to liquidation)	
WAM	360	Default Rate	1% MDR	Loss Severity	20.00%	

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
	100,000,000			1.0000												
1	97,934,244	1,000,000	999,329	0.9993	67,098	999,329	671	66,427	666,667	6,667	660,000				0.01	0.01
2	95,910,689	979,342	1,977,334	0.9987	66,870	978,680	1,337	65,532	659,557	13,191	646,366				0.01	0.01
3	93,928,478	959,107	2,934,442	0.9980	66,649	958,454	1,999	64,650	652,587	19,576	633,011				0.01	0.01
4	91,986,774	939,285	3,871,069	0.9973	66,436	938,641	2,657	63,779	645,753	25,825	619,928				0.01	0.01
5	90,084,753	919,868	4,787,627	0.9966	66,231	919,232	3,310	62,920	639,052	31,940	607,113				0.01	0.01
6	88,221,612	900,848	5,684,515	0.9959	66,032	900,221	3,959	62,073	632,483	37,923	594,559				0.01	0.01
7	86,396,561	882,216	6,562,127	0.9952	65,841	881,598	4,604	61,237	626,041	43,778	582,263				0.01	0.01
8	84,608,828	863,966	7,420,848	0.9945	65,658	863,355	5,245	60,412	619,725	49,507	570,217				0.01	0.01
9	82,857,654	846,088	8,261,054	0.9938	65,481	845,486	5,882	59,599	613,531	55,113	558,418				0.01	0.01
10	81,142,299	828,577	9,083,115	0.9931	65,312	827,983	6,515	58,796	607,458	60,598	546,861				0.01	0.01
11	79,462,034	811,423	9,887,394	0.9924	65,149	810,837	7,145	58,005	601,503	65,964	535,539				0.01	0.01
12	77,816,148	794,620	10,674,244	0.9916	64,994	794,042	7,770	57,223	595,663	71,213	524,449				0.01	0.01
13	76,203,943	778,161	10,453,093	0.9909	64,118	777,591	7,666	56,453	589,936	76,349	513,587	791,646	200,000	991,646	0.01	0.01
14	74,624,734	762,039	10,236,469	0.9902	63,255	761,477	7,562	55,693	577,714	74,768	502,946	775,233	195,868	971,101	0.01	0.01
15	73,077,852	746,247	10,024,279	0.9895	62,403	745,692	7,460	54,943	565,741	73,218	492,523	759,155	191,821	950,977	0.01	0.01
16	71,562,639	730,779	9,816,434	0.9887	61,563	730,231	7,360	54,203	554,014	71,700	482,314	743,407	187,857	931,264	0.01	0.01
17	70,078,454	715,626	9,612,844	0.9880	60,734	715,086	7,261	53,473	542,527	70,214	472,313	727,982	183,974	911,955	0.01	0.01
18	68,624,665	700,785	9,413,424	0.9872	59,916	700,252	7,163	52,753	531,275	68,758	462,518	712,872	180,170	893,041	0.01	0.01
19	67,200,655	686,247	9,218,089	0.9865	59,109	685,721	7,067	52,042	520,254	67,331	452,923	698,072	176,443	874,515	0.01	0.01
20	65,805,819	672,007	9,026,756	0.9857	58,313	671,488	6,971	51,341	509,458	65,934	443,524	683,575	172,793	856,368	0.01	0.01
21	64,439,565	658,058	8,839,343	0.9849	57,528	657,547	6,878	50,650	498,884	64,565	434,318	669,376	169,218	838,593	0.01	0.01
22	63,101,310	644,396	8,655,771	0.9842	56,753	643,891	6,785	49,968	488,526	63,225	425,301	655,467	165,715	821,183	0.01	0.01
23	61,790,487	631,013	8,475,962	0.9834	55,989	630,515	6,694	49,295	478,381	61,912	416,469	641,844	162,285	804,129	0.01	0.01
24	60,506,537	617,905	8,299,839	0.9826	55,235	617,414	6,603	48,631	468,443	60,626	407,817	628,500	158,924	787,424	0.01	0.01
25	59,248,915	605,065	8,127,328	0.9818	54,491	604,581	6,515	47,976	458,709	59,366	399,343	615,430	155,632	771,062	0.01	0.01
26	58,017,084	592,489	7,958,355	0.9810	53,757	592,011	6,427	47,330	449,175	58,132	391,043	602,628	152,408	755,036	0.01	0.01
27	56,810,522	580,171	7,792,847	0.9802	53,033	579,699	6,340	46,693	439,836	56,924	382,913	590,088	149,249	739,338	0.01	0.01
28	55,628,712	568,105	7,630,735	0.9794	52,319	567,640	6,255	46,064	430,689	55,740	374,949	577,806	146,156	723,962	0.01	0.01
29	54,471,153	556,287	7,471,950	0.9786	51,614	555,828	6,171	45,444	421,730	54,580	367,150	565,777	143,125	708,902	0.01	0.01
30	53,337,352	544,712	7,316,424	0.9778	50,919	544,259	6,088	44,832	412,954	53,444	359,510	553,994	140,157	694,151	0.01	0.01
31	52,226,823	533,374	7,164,089	0.9770	50,234	532,927	6,006	44,228	404,359	52,332	352,027	542,453	137,249	679,702	0.01	0.01
32	51,139,095	522,268	7,014,883	0.9762	49,557	521,828	5,925	43,632	395,939	51,242	344,697	531,149	134,401	665,550	0.01	0.01
33	50,073,703	511,391	6,868,740	0.9753	48,890	510,956	5,845	43,045	387,693	50,175	337,518	520,077	131,612	651,689	0.01	0.01
34	49,030,193	500,737	6,725,599	0.9745	48,231	500,308	5,766	42,465	379,616	49,130	330,486	509,233	128,879	638,112	0.01	0.01
35	48,008,119	490,302	6,585,399	0.9736	47,582	489,879	5,689	41,893	371,705	48,106	323,599	498,611	126,203	624,814	0.01	0.01
36	47,007,045	480,081	6,448,079	0.9728	46,941	479,664	5,612	41,329	363,957	47,103	316,854	488,208	123,581	611,789	0.01	0.01
37	46,026,543	470,070	6,313,581	0.9719	46,309	469,659	5,536	40,773	356,367	46,121	310,246	478,019	121,013	599,032	0.01	0.01
38	45,066,195	460,265	6,181,847	0.9711	45,685	459,859	5,462	40,223	348,934	45,159	303,775	468,039	118,498	586,537	0.01	0.01
39	44,125,591	450,662	6,052,822	0.9702	45,070	450,261	5,388	39,682	341,654	44,217	297,437	458,265	116,034	574,299	0.01	0.01
40	43,204,327	441,256	5,926,450	0.9694	44,463	440,860	5,316	39,147	334,523	43,294	291,229	448,691	113,621	562,312	0.01	0.01
41	42,302,010	432,043	5,802,677	0.9685	43,864	431,653	5,244	38,620	327,539	42,390	285,149	439,315	111,257	550,572	0.01	0.01
42	41,418,255	423,020	5,681,450	0.9676	43,274	422,635	5,174	38,100	320,698	41,505	279,193	430,131	108,942	539,074	0.01	0.01
43	40,552,682	414,183	5,562,717	0.9667	42,691	413,803	5,104	37,587	313,998	40,638	273,360	421,137	106,675	527,812	0.01	0.01
44	39,704,922	405,527	5,446,428	0.9658	42,116	405,152	5,035	37,081	307,436	39,788	267,648	412,328	104,454	516,781	0.01	0.01
45	38,874,612	397,049	5,332,532	0.9649	41,549	396,680	4,967	36,582	301,009	38,957	262,052	403,700	102,278	505,978	0.01	0.01
46	38,061,395	388,746	5,220,981	0.9640	40,989	388,382	4,900	36,089	294,714	38,142	256,572	395,249	100,147	495,397	0.01	0.01
47	37,264,924	380,614	5,111,727	0.9631	40,437	380,254	4,834	35,603	288,549	37,344	251,205	386,973	98,060	485,034	0.01	0.01
48	36,484,857	372,649	5,004,723	0.9622	39,893	372,294	4,769	35,123	282,511	36,563	245,948	378,868	96,016	474,884	0.01	0.01

Standard Default Methodology

Cash Flow A

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	1% SMM	Recover after	12 months (time to liquidation)
WAM	360	Default Rate	1% MDR	Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
49	35,720,859	364,849	4,899,923	0.9613	39,356	364,499	4,705	34,650	276,597	35,797	240,800	370,929	94,014	464,943	0.01	0.01
50	34,972,604	357,209	4,797,283	0.9603	38,826	356,863	4,642	34,184	270,805	35,048	235,758	363,154	92,053	455,207	0.01	0.01
51	34,239,769	349,726	4,696,758	0.9594	38,303	349,385	4,579	33,723	265,133	34,313	230,819	355,539	90,132	445,672	0.01	0.01
52	33,522,040	342,398	4,598,306	0.9585	37,787	342,062	4,518	33,269	259,577	33,594	225,982	348,082	88,251	436,333	0.01	0.01
53	32,819,109	335,220	4,501,883	0.9575	37,278	334,889	4,457	32,821	254,136	32,890	221,245	340,778	86,409	427,187	0.01	0.01
54	32,130,675	328,191	4,407,448	0.9566	36,776	327,864	4,397	32,379	248,807	32,200	216,606	333,625	84,604	418,229	0.01	0.01
55	31,456,441	321,307	4,314,962	0.9556	36,281	320,984	4,337	31,943	243,587	31,525	212,062	326,619	82,837	409,456	0.01	0.01
56	30,796,117	314,564	4,224,384	0.9546	35,792	314,246	4,279	31,513	238,476	30,864	207,613	319,758	81,105	400,864	0.01	0.01
57	30,149,420	307,961	4,135,675	0.9537	35,310	307,647	4,221	31,089	233,470	30,216	203,254	313,039	79,410	392,449	0.01	0.01
58	29,516,072	301,494	4,048,796	0.9527	34,835	301,184	4,165	30,670	228,567	29,581	198,986	306,458	77,749	384,208	0.01	0.01
59	28,895,799	295,161	3,963,712	0.9517	34,366	294,855	4,109	30,257	223,766	28,960	194,806	300,014	76,123	376,137	0.01	0.01
60	28,288,335	288,958	3,880,385	0.9507	33,903	288,656	4,053	29,850	219,063	28,351	190,712	293,702	74,530	368,232	0.01	0.01
61	27,693,418	282,883	3,798,778	0.9497	33,446	282,586	3,999	29,448	214,458	27,755	186,703	287,521	72,970	360,491	0.01	0.01
62	27,110,792	276,934	3,718,858	0.9487	32,996	276,641	3,945	29,051	209,948	27,171	182,777	281,468	71,442	352,910	0.01	0.01
63	26,540,206	271,108	3,640,589	0.9477	32,551	270,818	3,892	28,660	205,531	26,600	178,931	275,540	69,945	345,485	0.01	0.01
64	25,981,413	265,402	3,563,938	0.9467	32,113	265,116	3,839	28,274	201,205	26,040	175,165	269,734	68,480	338,214	0.01	0.01
65	25,434,174	259,814	3,488,872	0.9456	31,681	259,532	3,788	27,893	196,969	25,492	171,477	264,049	67,044	331,093	0.01	0.01
66	24,898,251	254,342	3,415,358	0.9446	31,254	254,064	3,737	27,517	192,820	24,955	167,866	258,481	65,638	324,119	0.01	0.01
67	24,373,413	248,983	3,343,365	0.9436	30,833	248,708	3,686	27,147	188,757	24,429	164,328	253,028	64,261	317,290	0.01	0.01
68	23,859,434	243,734	3,272,861	0.9425	30,418	243,464	3,637	26,781	184,779	23,914	160,865	247,689	62,913	310,601	0.01	0.01
69	23,356,091	238,594	3,203,816	0.9415	30,008	238,327	3,588	26,421	180,882	23,410	157,472	242,459	61,592	304,052	0.01	0.01
70	22,863,168	233,561	3,136,200	0.9404	29,604	233,298	3,539	26,065	177,066	22,916	154,150	237,338	60,299	297,637	0.01	0.01
71	22,380,450	228,632	3,069,985	0.9393	29,205	228,372	3,492	25,714	173,329	22,432	150,897	232,324	59,032	291,356	0.01	0.01
72	21,907,730	223,805	3,005,140	0.9383	28,812	223,548	3,445	25,368	169,670	21,959	147,711	227,413	57,792	285,204	0.01	0.01
73	21,444,802	219,077	2,941,639	0.9372	28,424	218,825	3,398	25,026	166,086	21,495	144,591	222,603	56,577	279,180	0.01	0.01
74	20,991,467	214,448	2,879,454	0.9361	28,041	214,199	3,352	24,689	162,576	21,041	141,536	217,894	55,387	273,281	0.01	0.01
75	20,547,527	209,915	2,818,558	0.9350	27,664	209,669	3,307	24,356	159,139	20,596	138,544	213,282	54,222	267,504	0.01	0.01
76	20,112,790	205,475	2,758,924	0.9339	27,291	205,233	3,263	24,028	155,774	20,160	135,614	208,766	53,080	261,846	0.01	0.01
77	19,687,069	201,128	2,700,527	0.9328	26,924	200,888	3,219	23,705	152,478	19,734	132,744	204,344	51,963	256,306	0.01	0.01
78	19,270,178	196,871	2,643,341	0.9316	26,561	196,634	3,175	23,386	149,251	19,316	129,935	200,013	50,868	250,881	0.01	0.01
79	18,861,937	192,702	2,587,341	0.9305	26,203	192,469	3,133	23,071	146,090	18,907	127,183	195,772	49,797	245,569	0.01	0.01
80	18,462,168	188,619	2,532,504	0.9294	25,851	188,389	3,091	22,760	142,995	18,506	124,489	191,619	48,747	240,366	0.01	0.01
81	18,070,698	184,622	2,478,805	0.9282	25,502	184,395	3,049	22,454	139,964	18,114	121,850	187,553	47,719	235,272	0.01	0.01
82	17,687,357	180,707	2,426,221	0.9271	25,159	180,483	3,008	22,151	136,997	17,730	119,267	183,571	46,712	230,283	0.01	0.01
83	17,311,977	176,874	2,374,729	0.9259	24,820	176,653	2,967	21,853	134,091	17,354	116,737	179,672	45,726	225,398	0.01	0.01
84	16,944,397	173,120	2,324,307	0.9248	24,486	172,902	2,927	21,559	131,245	16,986	114,259	175,853	44,761	220,614	0.01	0.01
85	16,584,456	169,444	2,274,933	0.9236	24,156	169,229	2,888	21,268	128,458	16,625	111,833	172,115	43,815	215,930	0.01	0.01
86	16,231,997	165,845	2,226,585	0.9224	23,831	165,633	2,849	20,982	125,729	16,272	109,457	168,454	42,890	211,343	0.01	0.01
87	15,886,866	162,320	2,179,243	0.9212	23,510	162,111	2,811	20,699	123,057	15,926	107,131	164,869	41,983	206,852	0.01	0.01
88	15,548,915	158,869	2,132,885	0.9200	23,193	158,662	2,773	20,421	120,441	15,587	104,853	161,358	41,095	202,454	0.01	0.01
89	15,217,994	155,489	2,087,492	0.9188	22,881	155,286	2,736	20,146	117,879	15,256	102,623	157,921	40,226	198,147	0.01	0.01
90	14,893,961	152,180	2,043,043	0.9176	22,573	151,979	2,699	19,874	115,370	14,931	100,439	154,556	39,374	193,930	0.01	0.01
91	14,576,673	148,940	1,999,520	0.9164	22,269	148,742	2,662	19,607	112,913	14,613	98,300	151,260	38,540	189,800	0.01	0.01
92	14,265,993	145,767	1,956,903	0.9152	21,969	145,571	2,626	19,343	110,508	14,302	96,206	148,033	37,724	185,757	0.01	0.01
93	13,961,783	142,660	1,915,174	0.9139	21,673	142,467	2,591	19,082	108,153	13,997	94,156	144,874	36,924	181,798	0.01	0.01
94	13,663,913	139,618	1,874,315	0.9127	21,381	139,428	2,556	18,825	105,846	13,699	92,148	141,780	36,141	177,921	0.01	0.01
95	13,372,250	136,639	1,834,306	0.9114	21,093	136,452	2,522	18,572	103,588	13,406	90,182	138,751	35,375	174,125	0.01	0.01
96	13,086,669	133,723	1,795,132	0.9102	20,809	133,537	2,488	18,322	101,377	13,120	88,257	135,785	34,624	170,409	0.01	0.01

Standard Default Methodology

Cash Flow A

Principal and Interest Are Advanced

WAC	8.00%	
WAM	360	

Prepay Rate	1% SMM	
Default Rate	1% MDR	

Recover after	12 months (time to liquidation)
Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
97	12,807,043	130,867	1,756,776	0.9089	20,529	130,684	2,454	18,075	99,212	12,840	86,372	132,881	33,889	166,769	0.01	0.01
98	12,533,251	128,070	1,719,219	0.9076	20,253	127,890	2,421	17,831	97,092	12,566	84,526	130,037	33,169	163,206	0.01	0.01
99	12,265,173	125,333	1,682,446	0.9063	19,980	125,155	2,389	17,591	95,016	12,297	82,719	127,253	32,464	159,717	0.01	0.01
100	12,002,690	122,652	1,646,440	0.9050	19,711	122,476	2,356	17,354	92,984	12,034	80,950	124,527	31,774	156,301	0.01	0.01
101	11,745,689	120,027	1,611,187	0.9037	19,445	119,854	2,325	17,121	90,994	11,776	79,218	121,858	31,098	152,956	0.01	0.01
102	11,494,055	117,457	1,576,670	0.9024	19,184	117,286	2,293	16,890	89,046	11,524	77,522	119,245	30,436	149,681	0.01	0.01
103	11,247,680	114,941	1,542,874	0.9011	18,925	114,772	2,263	16,663	87,138	11,277	75,861	116,686	29,788	146,474	0.01	0.01
104	11,006,454	112,477	1,509,784	0.8998	18,670	112,311	2,232	16,438	85,270	11,036	74,235	114,181	29,153	143,334	0.01	0.01
105	10,770,272	110,065	1,477,386	0.8984	18,419	109,901	2,202	16,217	83,442	10,799	72,643	111,728	28,532	140,260	0.01	0.01
106	10,539,029	107,703	1,445,666	0.8971	18,171	107,541	2,172	15,999	81,651	10,567	71,084	109,327	27,924	137,250	0.01	0.01
107	10,312,625	105,390	1,414,610	0.8957	17,926	105,231	2,143	15,783	79,898	10,340	69,558	106,976	27,328	134,304	0.01	0.01
108	10,090,960	103,126	1,384,203	0.8944	17,685	102,969	2,114	15,571	78,182	10,118	68,063	104,674	26,745	131,418	0.01	0.01
109	9,873,935	100,910	1,354,433	0.8930	17,447	100,754	2,086	15,361	76,501	9,901	66,600	102,420	26,173	128,594	0.01	0.01
110	9,661,455	98,739	1,325,287	0.8916	17,212	98,586	2,058	15,154	74,856	9,688	65,168	100,214	25,614	125,828	0.01	0.01
111	9,453,427	96,615	1,296,751	0.8902	16,980	96,464	2,030	14,950	73,245	9,479	63,766	98,054	25,067	123,120	0.01	0.01
112	9,249,759	94,534	1,268,814	0.8888	16,751	94,385	2,003	14,749	71,668	9,275	62,393	95,939	24,530	120,469	0.01	0.01
113	9,050,361	92,498	1,241,462	0.8874	16,526	92,351	1,976	14,550	70,124	9,075	61,048	93,868	24,005	117,874	0.01	0.01
114	8,855,145	90,504	1,214,683	0.8860	16,303	90,359	1,949	14,354	68,612	8,880	59,732	91,841	23,491	115,333	0.01	0.01
115	8,664,024	88,551	1,188,467	0.8845	16,084	88,408	1,923	14,161	67,132	8,688	58,444	89,857	22,988	112,845	0.01	0.01
116	8,476,915	86,640	1,162,800	0.8831	15,867	86,499	1,897	13,970	65,683	8,501	57,183	87,914	22,495	110,410	0.01	0.01
117	8,293,734	84,769	1,137,673	0.8817	15,653	84,630	1,871	13,782	64,265	8,317	55,948	86,012	22,013	108,025	0.01	0.01
118	8,114,400	82,937	1,113,073	0.8802	15,442	82,800	1,846	13,596	62,876	8,137	54,739	84,150	21,541	105,691	0.01	0.01
119	7,938,834	81,144	1,088,991	0.8787	15,235	81,009	1,821	13,413	61,516	7,961	53,555	82,327	21,078	103,405	0.01	0.01
120	7,766,959	79,388	1,065,414	0.8772	15,029	79,255	1,797	13,233	60,185	7,789	52,396	80,543	20,625	101,168	0.01	0.01
121	7,598,697	77,670	1,042,333	0.8758	14,827	77,538	1,773	13,054	58,882	7,621	51,262	78,796	20,182	98,978	0.01	0.01
122	7,433,975	75,987	1,019,738	0.8743	14,627	75,857	1,749	12,879	57,607	7,455	50,151	77,086	19,748	96,834	0.01	0.01
123	7,272,718	74,340	997,618	0.8727	14,430	74,211	1,725	12,705	56,358	7,294	49,064	75,412	19,323	94,734	0.01	0.01
124	7,114,856	72,727	975,963	0.8712	14,236	72,601	1,702	12,534	55,136	7,136	48,000	73,773	18,907	92,680	0.01	0.01
125	6,960,319	71,149	954,765	0.8697	14,044	71,024	1,679	12,365	53,939	6,981	46,958	72,168	18,500	90,668	0.01	0.01
126	6,809,037	69,603	934,013	0.8682	13,855	69,480	1,656	12,199	52,767	6,829	45,938	70,598	18,101	88,698	0.01	0.01
127	6,660,943	68,090	913,699	0.8666	13,669	67,969	1,634	12,034	51,620	6,681	44,940	69,060	17,710	86,771	0.01	0.01
128	6,515,972	66,609	893,813	0.8651	13,485	66,490	1,612	11,872	50,498	6,535	43,962	67,555	17,328	84,883	0.01	0.01
129	6,374,058	65,160	874,346	0.8635	13,303	65,041	1,590	11,713	49,399	6,393	43,005	66,082	16,954	83,036	0.01	0.01
130	6,235,139	63,741	855,290	0.8619	13,124	63,624	1,569	11,555	48,323	6,254	42,069	64,640	16,587	81,228	0.01	0.01
131	6,099,152	62,351	836,637	0.8603	12,947	62,236	1,548	11,399	47,270	6,118	41,152	63,228	16,229	79,457	0.01	0.01
132	5,966,037	60,992	818,377	0.8587	12,773	60,878	1,527	11,246	46,239	5,984	40,254	61,847	15,878	77,724	0.01	0.01
133	5,835,734	59,660	800,503	0.8571	12,601	59,548	1,506	11,094	45,229	5,854	39,376	60,494	15,534	76,028	0.01	0.01
134	5,708,185	58,357	783,007	0.8555	12,431	58,247	1,486	10,945	44,242	5,726	38,516	59,170	15,197	74,367	0.01	0.01
135	5,583,333	57,082	765,880	0.8538	12,264	56,973	1,466	10,797	43,275	5,601	37,674	57,874	14,868	72,742	0.01	0.01
136	5,461,122	55,833	749,116	0.8522	12,098	55,726	1,446	10,652	42,328	5,478	36,850	56,606	14,545	71,151	0.01	0.01
137	5,341,497	54,611	732,707	0.8505	11,936	54,505	1,427	10,509	41,402	5,358	36,043	55,364	14,230	69,594	0.01	0.01
138	5,224,405	53,415	716,645	0.8489	11,775	53,310	1,408	10,367	40,495	5,241	35,254	54,148	13,921	68,069	0.01	0.01
139	5,109,793	52,244	700,924	0.8472	11,616	52,141	1,389	10,227	39,607	5,126	34,481	52,959	13,618	66,577	0.01	0.01
140	4,997,609	51,098	685,535	0.8455	11,460	50,996	1,370	10,090	38,738	5,013	33,725	51,795	13,322	65,116	0.01	0.01
141	4,887,804	49,976	670,473	0.8438	11,305	49,876	1,352	9,954	37,888	4,903	32,984	50,655	13,032	63,687	0.01	0.01
142	4,780,327	48,878	655,730	0.8421	11,153	48,779	1,333	9,820	37,055	4,796	32,260	49,539	12,748	62,287	0.01	0.01
143	4,675,131	47,803	641,300	0.8404	11,003	47,705	1,315	9,688	36,240	4,690	31,550	48,448	12,470	60,918	0.01	0.01
144	4,572,168	46,751	627,176	0.8386	10,855	46,655	1,298	9,557	35,443	4,587	30,856	47,379	12,198	59,577	0.01	0.01

Standard Default Methodology

Cash Flow A

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	1% SMM	Recover after	12 months (time to liquidation)
WAM	360	Default Rate	1% MDR	Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
145	4,471,391	45,722	613,352	0.8369	10,709	45,626	1,280	9,428	34,662	4,486	30,176	46,333	11,932	58,265	0.01	0.01
146	4,372,756	44,714	599,822	0.8351	10,564	44,620	1,263	9,301	33,898	4,387	29,511	45,309	11,671	56,981	0.01	0.01
147	4,276,217	43,728	586,580	0.8333	10,422	43,635	1,246	9,176	33,151	4,290	28,860	44,308	11,416	55,724	0.01	0.01
148	4,181,732	42,762	573,619	0.8316	10,282	42,671	1,229	9,053	32,419	4,196	28,223	43,327	11,167	54,494	0.01	0.01
149	4,089,257	41,817	560,934	0.8298	10,143	41,727	1,213	8,931	31,702	4,103	27,599	42,367	10,922	53,290	0.01	0.01
150	3,998,750	40,893	548,519	0.8280	10,007	40,804	1,196	8,810	31,001	4,012	26,989	41,428	10,683	52,111	0.01	0.01
151	3,910,171	39,987	536,368	0.8261	9,872	39,900	1,180	8,692	30,315	3,923	26,392	40,509	10,449	50,958	0.01	0.01
152	3,823,479	39,102	524,477	0.8243	9,739	39,015	1,164	8,575	29,644	3,836	25,807	39,609	10,220	49,829	0.01	0.01
153	3,738,636	38,235	512,838	0.8225	9,608	38,149	1,149	8,459	28,986	3,751	25,235	38,729	9,995	48,724	0.01	0.01
154	3,655,602	37,386	501,448	0.8206	9,479	37,302	1,133	8,345	28,343	3,668	24,675	37,868	9,776	47,643	0.01	0.01
155	3,574,340	36,556	490,302	0.8188	9,351	36,473	1,118	8,233	27,714	3,587	24,127	37,024	9,561	46,585	0.01	0.01
156	3,494,814	35,743	479,393	0.8169	9,225	35,661	1,103	8,122	27,098	3,507	23,591	36,199	9,350	45,549	0.01	0.01
157	3,416,986	34,948	468,717	0.8150	9,101	34,867	1,088	8,013	26,495	3,429	23,066	35,392	9,144	44,536	0.01	0.01
158	3,340,821	34,170	458,269	0.8131	8,978	34,090	1,073	7,905	25,905	3,353	22,552	34,601	8,943	43,544	0.01	0.01
159	3,266,285	33,408	448,045	0.8112	8,857	33,329	1,059	7,798	25,327	3,278	22,049	33,828	8,746	42,574	0.01	0.01
160	3,193,344	32,663	438,039	0.8092	8,738	32,585	1,045	7,693	24,762	3,205	21,557	33,071	8,552	41,624	0.01	0.01
161	3,121,964	31,933	428,248	0.8073	8,620	31,857	1,031	7,590	24,209	3,133	21,076	32,331	8,363	40,694	0.01	0.01
162	3,052,112	31,220	418,666	0.8053	8,504	31,144	1,017	7,488	23,668	3,063	20,605	31,606	8,179	39,785	0.01	0.01
163	2,983,758	30,521	409,290	0.8034	8,390	30,447	1,003	7,387	23,139	2,995	20,144	30,897	7,997	38,894	0.01	0.01
164	2,916,869	29,838	400,115	0.8014	8,277	29,764	990	7,287	22,620	2,928	19,693	30,203	7,820	38,023	0.01	0.01
165	2,851,415	29,169	391,136	0.7994	8,165	29,096	976	7,189	22,113	2,862	19,251	29,524	7,647	37,171	0.01	0.01
166	2,787,367	28,514	382,350	0.7974	8,055	28,443	963	7,092	21,617	2,798	18,819	28,860	7,477	36,337	0.01	0.01
167	2,724,693	27,874	373,753	0.7954	7,947	27,803	950	6,997	21,131	2,735	18,397	28,209	7,311	35,521	0.01	0.01
168	2,663,366	27,247	365,341	0.7933	7,840	27,177	937	6,903	20,656	2,673	17,983	27,573	7,149	34,722	0.01	0.01
169	2,603,358	26,634	357,109	0.7913	7,734	26,565	925	6,810	20,191	2,613	17,578	26,951	6,990	33,940	0.01	0.01
170	2,544,641	26,034	349,055	0.7892	7,630	25,966	912	6,718	19,736	2,554	17,182	26,342	6,834	33,176	0.01	0.01
171	2,487,188	25,446	341,174	0.7871	7,527	25,379	900	6,627	19,291	2,497	16,795	25,746	6,682	32,428	0.01	0.01
172	2,430,972	24,872	333,463	0.7850	7,426	24,806	888	6,538	18,856	2,440	16,415	25,163	6,533	31,695	0.01	0.01
173	2,375,968	24,310	325,918	0.7829	7,326	24,245	876	6,450	18,430	2,385	16,044	24,592	6,387	30,979	0.01	0.01
174	2,322,149	23,760	318,535	0.7808	7,227	23,695	864	6,363	18,013	2,331	15,681	24,034	6,244	30,278	0.01	0.01
175	2,269,492	23,221	311,312	0.7787	7,130	23,158	852	6,278	17,605	2,278	15,326	23,488	6,104	29,592	0.01	0.01
176	2,217,972	22,695	304,245	0.7765	7,034	22,632	841	6,193	17,205	2,227	14,979	22,954	5,968	28,921	0.01	0.01
177	2,167,564	22,180	297,330	0.7744	6,939	22,118	830	6,110	16,815	2,176	14,639	22,431	5,834	28,265	0.01	0.01
178	2,118,247	21,676	290,565	0.7722	6,846	21,615	818	6,027	16,433	2,127	14,306	21,919	5,703	27,622	0.01	0.01
179	2,069,996	21,182	283,947	0.7700	6,754	21,122	807	5,946	16,059	2,078	13,980	21,419	5,575	26,994	0.01	0.01
180	2,022,789	20,700	277,471	0.7678	6,663	20,641	797	5,866	15,693	2,031	13,662	20,930	5,449	26,379	0.01	0.01
181	1,976,604	20,228	271,136	0.7656	6,573	20,169	786	5,787	15,335	1,985	13,350	20,451	5,327	25,777	0.01	0.01
182	1,931,421	19,766	264,938	0.7634	6,484	19,708	775	5,709	14,985	1,939	13,046	19,982	5,207	25,189	0.01	0.01
183	1,887,217	19,314	258,874	0.7611	6,397	19,257	765	5,632	14,642	1,895	12,747	19,524	5,089	24,613	0.01	0.01
184	1,843,972	18,872	252,942	0.7589	6,311	18,816	754	5,556	14,307	1,852	12,456	19,075	4,974	24,050	0.01	0.01
185	1,801,667	18,440	247,139	0.7566	6,226	18,384	744	5,482	13,979	1,809	12,170	18,637	4,862	23,499	0.01	0.01
186	1,760,280	18,017	241,462	0.7543	6,142	17,962	734	5,408	13,659	1,768	11,891	18,208	4,752	22,959	0.01	0.01
187	1,719,793	17,603	235,909	0.7520	6,059	17,549	724	5,335	13,345	1,727	11,618	17,788	4,644	22,432	0.01	0.01
188	1,680,188	17,198	230,476	0.7496	5,978	17,145	715	5,263	13,038	1,687	11,351	17,377	4,539	21,916	0.01	0.01
189	1,641,444	16,802	225,161	0.7473	5,897	16,749	705	5,192	12,738	1,649	11,089	16,975	4,436	21,411	0.01	0.01
190	1,603,545	16,414	219,962	0.7449	5,818	16,363	696	5,122	12,444	1,611	10,834	16,583	4,335	20,918	0.01	0.01
191	1,566,471	16,035	214,877	0.7426	5,740	15,984	686	5,053	12,157	1,573	10,583	16,198	4,236	20,435	0.01	0.01
192	1,530,207	15,665	209,902	0.7402	5,662	15,614	677	4,985	11,876	1,537	10,339	15,822	4,140	19,962	0.01	0.01

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	1% SMM	Recover after	12 months (time to liquidation)	
WAM	360	Default Rate	1% MDR	Loss Severity	20.00%	

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
193	1,494,734	15,302	205,037	0.7378	5,586	15,252	668	4,918	11,601	1,501	10,099	15,455	4,046	19,500	0.01	0.01
194	1,460,037	14,947	200,277	0.7354	5,511	14,898	659	4,852	11,332	1,467	9,865	15,095	3,953	19,048	0.01	0.01
195	1,426,098	14,600	195,622	0.7329	5,437	14,552	650	4,787	11,069	1,433	9,636	14,743	3,863	18,606	0.01	0.01
196	1,392,901	14,261	191,068	0.7305	5,363	14,213	641	4,722	10,811	1,399	9,412	14,399	3,774	18,173	0.01	0.01
197	1,360,432	13,929	186,614	0.7280	5,291	13,882	633	4,659	10,560	1,367	9,193	14,062	3,688	17,750	0.01	0.01
198	1,328,674	13,604	182,258	0.7255	5,220	13,558	624	4,596	10,314	1,335	8,979	13,733	3,603	17,337	0.01	0.01
199	1,297,612	13,287	177,997	0.7230	5,150	13,241	616	4,534	10,073	1,304	8,769	13,411	3,521	16,932	0.01	0.01
200	1,267,232	12,976	173,830	0.7205	5,080	12,931	607	4,473	9,837	1,273	8,564	13,096	3,440	16,536	0.01	0.01
201	1,237,520	12,672	169,754	0.7180	5,012	12,628	599	4,413	9,607	1,243	8,364	12,789	3,360	16,149	0.01	0.01
202	1,208,460	12,375	165,768	0.7154	4,944	12,331	591	4,353	9,382	1,214	8,168	12,487	3,283	15,770	0.01	0.01
203	1,180,040	12,085	161,869	0.7129	4,878	12,041	583	4,295	9,162	1,186	7,976	12,193	3,207	15,400	0.01	0.01
204	1,152,245	11,800	158,056	0.7103	4,812	11,758	575	4,237	8,946	1,158	7,788	11,905	3,133	15,038	0.01	0.01
205	1,125,063	11,522	154,328	0.7077	4,747	11,480	568	4,180	8,735	1,131	7,605	11,623	3,060	14,684	0.01	0.01
206	1,098,480	11,251	150,681	0.7051	4,683	11,209	560	4,123	8,529	1,104	7,425	11,348	2,989	14,337	0.01	0.01
207	1,072,483	10,985	147,115	0.7024	4,620	10,944	552	4,068	8,328	1,078	7,250	11,078	2,920	13,998	0.01	0.01
208	1,047,061	10,725	143,628	0.6998	4,558	10,684	545	4,013	8,131	1,052	7,078	10,815	2,852	13,667	0.01	0.01
209	1,022,201	10,471	140,218	0.6971	4,497	10,431	538	3,959	7,938	1,027	6,911	10,557	2,786	13,343	0.01	0.01
210	997,890	10,222	136,883	0.6944	4,436	10,183	530	3,906	7,749	1,003	6,747	10,306	2,721	13,026	0.01	0.01
211	974,118	9,979	133,622	0.6917	4,376	9,940	523	3,853	7,565	979	6,586	10,059	2,657	12,717	0.01	0.01
212	950,873	9,741	130,434	0.6890	4,317	9,703	516	3,801	7,385	956	6,429	9,818	2,595	12,414	0.01	0.01
213	928,143	9,509	127,316	0.6862	4,259	9,471	509	3,750	7,209	933	6,276	9,583	2,534	12,117	0.01	0.01
214	905,918	9,281	124,267	0.6835	4,202	9,244	502	3,700	7,036	911	6,126	9,353	2,475	11,828	0.01	0.01
215	884,187	9,059	121,286	0.6807	4,145	9,022	496	3,650	6,868	889	5,979	9,128	2,417	11,545	0.01	0.01
216	862,939	8,842	118,372	0.6779	4,090	8,806	489	3,601	6,703	868	5,836	8,908	2,360	11,268	0.01	0.01
217	842,164	8,629	115,522	0.6751	4,034	8,594	482	3,552	6,542	847	5,695	8,692	2,304	10,997	0.01	0.01
218	821,852	8,422	112,736	0.6722	3,980	8,386	476	3,504	6,385	826	5,558	8,482	2,250	10,732	0.01	0.01
219	801,993	8,219	110,011	0.6694	3,927	8,184	469	3,457	6,231	806	5,424	8,276	2,197	10,473	0.01	0.01
220	782,577	8,020	107,348	0.6665	3,874	7,985	463	3,411	6,080	787	5,293	8,075	2,145	10,220	0.01	0.01
221	763,595	7,826	104,744	0.6636	3,821	7,792	457	3,365	5,933	768	5,165	7,879	2,094	9,973	0.01	0.01
222	745,037	7,636	102,199	0.6607	3,770	7,602	451	3,319	5,789	749	5,040	7,686	2,044	9,731	0.01	0.01
223	726,895	7,450	99,710	0.6577	3,719	7,417	445	3,275	5,648	731	4,917	7,499	1,996	9,494	0.01	0.01
224	709,159	7,269	97,277	0.6548	3,669	7,236	439	3,230	5,511	713	4,798	7,315	1,948	9,263	0.01	0.01
225	691,821	7,092	94,899	0.6518	3,620	7,059	433	3,187	5,376	696	4,680	7,135	1,902	9,037	0.01	0.01
226	674,872	6,918	92,574	0.6488	3,571	6,886	427	3,144	5,245	679	4,566	6,960	1,856	8,816	0.01	0.01
227	658,305	6,749	90,301	0.6458	3,523	6,717	421	3,102	5,116	662	4,454	6,788	1,812	8,600	0.01	0.01
228	642,109	6,583	88,080	0.6428	3,475	6,552	416	3,060	4,991	646	4,345	6,621	1,768	8,389	0.01	0.01
229	626,279	6,421	85,908	0.6397	3,429	6,391	410	3,019	4,868	630	4,238	6,457	1,726	8,183	0.01	0.01
230	610,805	6,263	83,786	0.6367	3,382	6,233	404	2,978	4,748	614	4,133	6,297	1,684	7,981	0.01	0.01
231	595,681	6,108	81,711	0.6336	3,337	6,078	399	2,938	4,631	599	4,031	6,140	1,644	7,784	0.01	0.01
232	580,898	5,957	79,683	0.6304	3,292	5,928	394	2,898	4,516	584	3,931	5,987	1,604	7,591	0.01	0.01
233	566,450	5,809	77,701	0.6273	3,248	5,780	388	2,859	4,404	570	3,834	5,837	1,565	7,403	0.01	0.01
234	552,328	5,664	75,764	0.6242	3,204	5,636	383	2,821	4,294	556	3,739	5,691	1,527	7,219	0.01	0.01
235	538,527	5,523	73,871	0.6210	3,161	5,495	378	2,783	4,187	542	3,645	5,548	1,490	7,039	0.01	0.01
236	525,039	5,385	72,021	0.6178	3,118	5,358	373	2,745	4,083	528	3,554	5,409	1,454	6,863	0.01	0.01
237	511,857	5,250	70,213	0.6146	3,076	5,223	368	2,708	3,980	515	3,465	5,272	1,418	6,691	0.01	0.01
238	498,975	5,119	68,446	0.6113	3,035	5,092	363	2,672	3,880	502	3,378	5,139	1,384	6,523	0.01	0.01
239	486,386	4,990	66,719	0.6081	2,994	4,963	358	2,636	3,783	490	3,293	5,009	1,350	6,359	0.01	0.01
240	474,084	4,864	65,031	0.6048	2,954	4,838	353	2,600	3,687	477	3,210	4,882	1,317	6,198	0.01	0.01

Standard Default Methodology

Cash Flow A

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	1% SMM	Recover after	12 months (time to liquidation)			
WAM	360	Default Rate	1% MDR	Loss Severity	20.00%			

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
241	462,063	4,741	63,382	0.6015	2,914	4,715	348	2,565	3,594	465	3,129	4,757	1,284	6,041	0.01	0.01
242	450,316	4,621	61,771	0.5981	2,875	4,595	344	2,531	3,503	453	3,050	4,636	1,253	5,888	0.01	0.01
243	438,838	4,503	60,197	0.5948	2,836	4,478	339	2,497	3,414	442	2,972	4,517	1,222	5,739	0.01	0.01
244	427,623	4,388	58,658	0.5914	2,798	4,364	334	2,463	3,327	431	2,896	4,401	1,191	5,592	0.01	0.01
245	416,665	4,276	57,155	0.5880	2,760	4,252	330	2,430	3,242	420	2,822	4,288	1,162	5,449	0.01	0.01
246	405,959	4,167	55,686	0.5846	2,723	4,142	326	2,397	3,159	409	2,750	4,177	1,133	5,310	0.01	0.01
247	395,498	4,060	54,252	0.5812	2,686	4,036	321	2,365	3,078	398	2,679	4,069	1,105	5,173	0.01	0.01
248	385,279	3,955	52,850	0.5777	2,650	3,931	317	2,333	2,998	388	2,610	3,963	1,077	5,040	0.01	0.01
249	375,295	3,853	51,480	0.5742	2,614	3,830	313	2,302	2,921	378	2,543	3,860	1,050	4,910	0.01	0.01
250	365,541	3,753	50,142	0.5707	2,579	3,730	308	2,271	2,845	368	2,477	3,759	1,024	4,783	0.01	0.01
251	356,013	3,655	48,835	0.5672	2,544	3,633	304	2,240	2,771	359	2,413	3,660	998	4,658	0.01	0.01
252	346,705	3,560	47,558	0.5636	2,510	3,538	300	2,210	2,699	349	2,350	3,564	973	4,537	0.01	0.01
253	337,612	3,467	46,311	0.5600	2,476	3,445	296	2,180	2,628	340	2,288	3,470	948	4,418	0.01	0.01
254	328,731	3,376	45,093	0.5564	2,443	3,354	292	2,151	2,559	331	2,228	3,378	924	4,302	0.01	0.01
255	320,056	3,287	43,903	0.5528	2,410	3,266	288	2,122	2,492	323	2,170	3,289	901	4,189	0.01	0.01
256	311,582	3,201	42,741	0.5492	2,378	3,179	284	2,093	2,426	314	2,112	3,201	878	4,079	0.01	0.01
257	303,307	3,116	41,605	0.5455	2,346	3,095	280	2,065	2,362	306	2,056	3,115	855	3,971	0.01	0.01
258	295,224	3,033	40,497	0.5418	2,314	3,012	277	2,037	2,299	298	2,002	3,032	833	3,865	0.01	0.01
259	287,330	2,952	39,414	0.5381	2,283	2,932	273	2,010	2,238	290	1,948	2,950	812	3,762	0.01	0.01
260	279,620	2,873	38,356	0.5343	2,252	2,853	269	1,983	2,178	282	1,896	2,871	791	3,662	0.01	0.01
261	272,091	2,796	37,323	0.5305	2,222	2,776	266	1,956	2,120	274	1,845	2,793	771	3,563	0.01	0.01
262	264,739	2,721	36,315	0.5267	2,192	2,701	262	1,930	2,063	267	1,796	2,717	751	3,467	0.01	0.01
263	257,560	2,647	35,330	0.5229	2,162	2,628	259	1,904	2,007	260	1,747	2,643	731	3,374	0.01	0.01
264	250,549	2,576	34,369	0.5191	2,133	2,557	255	1,878	1,953	253	1,700	2,570	712	3,282	0.01	0.01
265	243,704	2,505	33,430	0.5152	2,104	2,487	252	1,853	1,899	246	1,654	2,499	693	3,193	0.01	0.01
266	237,021	2,437	32,513	0.5113	2,076	2,419	248	1,828	1,848	239	1,608	2,430	675	3,106	0.01	0.01
267	230,495	2,370	31,618	0.5073	2,048	2,352	245	1,803	1,797	233	1,564	2,363	657	3,020	0.01	0.01
268	224,124	2,305	30,744	0.5034	2,021	2,287	242	1,779	1,747	226	1,521	2,297	640	2,937	0.01	0.01
269	217,904	2,241	29,891	0.4994	1,993	2,224	238	1,755	1,699	220	1,479	2,233	623	2,856	0.01	0.01
270	211,832	2,179	29,058	0.4954	1,967	2,162	235	1,731	1,652	214	1,438	2,170	607	2,777	0.01	0.01
271	205,905	2,118	28,244	0.4914	1,940	2,101	232	1,708	1,606	208	1,398	2,109	590	2,699	0.01	0.01
272	200,119	2,059	27,451	0.4873	1,914	2,042	229	1,685	1,561	202	1,359	2,049	575	2,624	0.01	0.01
273	194,471	2,001	26,676	0.4832	1,888	1,984	226	1,662	1,517	196	1,321	1,991	559	2,550	0.01	0.01
274	188,958	1,945	25,920	0.4791	1,863	1,928	223	1,640	1,474	191	1,284	1,934	544	2,478	0.01	0.01
275	183,577	1,890	25,182	0.4749	1,838	1,873	220	1,618	1,433	185	1,247	1,878	529	2,408	0.01	0.01
276	178,325	1,836	24,461	0.4708	1,813	1,820	217	1,596	1,392	180	1,212	1,824	515	2,339	0.01	0.01
277	173,200	1,783	23,758	0.4666	1,788	1,767	214	1,575	1,352	175	1,177	1,771	501	2,272	0.01	0.01
278	168,198	1,732	23,072	0.4624	1,764	1,716	211	1,553	1,313	170	1,143	1,720	487	2,207	0.01	0.01
279	163,317	1,682	22,403	0.4581	1,741	1,667	208	1,533	1,275	165	1,110	1,669	474	2,143	0.01	0.01
280	158,554	1,633	21,749	0.4538	1,717	1,618	205	1,512	1,238	160	1,078	1,620	461	2,081	0.01	0.01
281	153,907	1,586	21,112	0.4495	1,694	1,570	203	1,492	1,202	156	1,046	1,572	448	2,021	0.01	0.01
282	149,372	1,539	20,490	0.4452	1,671	1,524	200	1,471	1,167	151	1,016	1,525	436	1,961	0.01	0.01
283	144,948	1,494	19,883	0.4408	1,649	1,479	197	1,452	1,132	147	986	1,480	424	1,904	0.01	0.01
284	140,631	1,449	19,291	0.4364	1,627	1,435	194	1,432	1,099	142	957	1,435	412	1,847	0.01	0.01
285	136,420	1,406	18,713	0.4320	1,605	1,392	192	1,413	1,066	138	928	1,392	400	1,792	0.01	0.01
286	132,312	1,364	18,150	0.4275	1,583	1,350	189	1,394	1,034	134	900	1,350	389	1,738	0.01	0.01
287	128,304	1,323	17,600	0.4230	1,562	1,309	187	1,375	1,003	130	873	1,308	378	1,686	0.01	0.01
288	124,395	1,283	17,064	0.4185	1,541	1,269	184	1,357	973	126	847	1,268	367	1,635	0.01	0.01

Principal and Interest Are Advanced

	WAC	8.00%		Prepay Rate	1% SMM		Recover after	12 months (time to liquidation)
	WAM	360		Default Rate	1% MDR		Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
289	120,583	1,244	16,541	0.4140	1,520	1,230	182	1,338	943	122	821	1,229	357	1,585	0.01	0.01
290	116,864	1,206	16,031	0.4094	1,499	1,192	179	1,320	914	118	796	1,190	346	1,537	0.01	0.01
291	113,238	1,169	15,533	0.4048	1,479	1,155	177	1,302	886	115	771	1,153	336	1,489	0.01	0.01
292	109,701	1,132	15,048	0.4001	1,459	1,119	174	1,285	858	111	747	1,116	327	1,443	0.01	0.01
293	106,252	1,097	14,575	0.3955	1,440	1,084	172	1,268	832	108	724	1,081	317	1,398	0.01	0.01
294	102,889	1,063	14,114	0.3908	1,420	1,050	170	1,251	806	104	701	1,046	308	1,354	0.01	0.01
295	99,610	1,029	13,664	0.3860	1,401	1,016	168	1,234	780	101	679	1,012	299	1,311	0.01	0.01
296	96,413	996	13,225	0.3813	1,382	984	165	1,217	755	98	657	979	290	1,269	0.01	0.01
297	93,296	964	12,798	0.3765	1,364	952	163	1,201	731	95	636	947	281	1,229	0.01	0.01
298	90,258	933	12,381	0.3716	1,345	921	161	1,185	707	92	616	916	273	1,189	0.01	0.01
299	87,296	903	11,975	0.3668	1,327	891	159	1,169	684	89	596	886	265	1,150	0.01	0.01
300	84,409	873	11,579	0.3619	1,309	861	157	1,153	662	86	576	856	257	1,112	0.01	0.01
301	81,595	844	11,193	0.3570	1,292	833	154	1,137	640	83	557	827	249	1,076	0.01	0.01
302	78,852	816	10,816	0.3520	1,274	805	152	1,122	619	80	539	799	241	1,040	0.01	0.01
303	76,180	789	10,450	0.3470	1,257	777	150	1,107	598	77	520	771	234	1,005	0.01	0.01
304	73,575	762	10,093	0.3420	1,240	751	148	1,092	578	75	503	744	226	971	0.01	0.01
305	71,037	736	9,744	0.3369	1,224	725	146	1,077	558	72	486	718	219	938	0.01	0.01
306	68,565	710	9,405	0.3318	1,207	700	144	1,063	539	70	469	693	213	905	0.01	0.01
307	66,155	686	9,075	0.3267	1,191	675	142	1,048	520	67	453	668	206	874	0.01	0.01
308	63,808	662	8,753	0.3215	1,175	651	140	1,034	502	65	437	644	199	843	0.01	0.01
309	61,522	638	8,439	0.3164	1,159	628	139	1,020	484	63	421	620	193	813	0.01	0.01
310	59,295	615	8,134	0.3111	1,143	605	137	1,007	466	60	406	597	187	784	0.01	0.01
311	57,126	593	7,836	0.3059	1,128	583	135	993	450	58	391	575	181	756	0.01	0.01
312	55,014	571	7,546	0.3006	1,113	561	133	980	433	56	377	553	175	728	0.01	0.01
313	52,957	550	7,264	0.2952	1,098	540	131	967	417	54	363	532	169	701	0.01	0.01
314	50,954	530	6,989	0.2899	1,083	520	129	954	401	52	350	512	163	675	0.01	0.01
315	49,004	510	6,722	0.2845	1,068	500	128	941	386	50	336	492	158	649	0.01	0.01
316	47,105	490	6,462	0.2790	1,054	481	126	928	372	48	323	472	152	624	0.01	0.01
317	45,257	471	6,208	0.2735	1,040	462	124	916	357	46	311	453	147	600	0.01	0.01
318	43,457	453	5,961	0.2680	1,026	443	123	903	343	44	299	435	142	577	0.01	0.01
319	41,706	435	5,721	0.2625	1,012	426	121	891	329	43	287	417	137	554	0.01	0.01
320	40,002	417	5,487	0.2569	998	408	119	879	316	41	275	399	132	531	0.01	0.01
321	38,343	400	5,260	0.2513	985	391	118	867	303	39	264	382	128	510	0.01	0.01
322	36,730	383	5,038	0.2456	972	375	116	856	291	38	253	366	123	489	0.01	0.01
323	35,160	367	4,823	0.2399	959	359	115	844	278	36	242	349	119	468	0.01	0.01
324	33,632	352	4,613	0.2342	946	343	113	833	267	34	232	334	114	448	0.01	0.01
325	32,147	336	4,410	0.2284	933	328	112	821	255	33	222	319	110	429	0.01	0.01
326	30,701	321	4,211	0.2226	920	313	110	810	244	32	212	304	106	410	0.01	0.01
327	29,296	307	4,019	0.2167	908	299	109	799	233	30	203	289	102	391	0.01	0.01
328	27,929	293	3,831	0.2108	896	285	107	789	222	29	193	275	98	373	0.01	0.01
329	26,601	279	3,649	0.2049	884	271	106	778	212	27	184	262	94	356	0.01	0.01
330	25,309	266	3,472	0.1989	872	258	104	768	202	26	176	248	91	339	0.01	0.01
331	24,053	253	3,299	0.1929	860	245	103	757	192	25	167	236	87	323	0.01	0.01
332	22,833	241	3,132	0.1869	848	233	101	747	182	24	159	223	83	307	0.01	0.01
333	21,646	228	2,969	0.1808	837	221	100	737	173	22	151	211	80	291	0.01	0.01
334	20,494	216	2,811	0.1746	826	209	99	727	164	21	143	199	77	276	0.01	0.01
335	19,374	205	2,658	0.1685	815	198	97	717	155	20	135	188	73	261	0.01	0.01
336	18,286	194	2,508	0.1622	804	187	96	708	147	19	128	177	70	247	0.01	0.01

Standard Default Methodology

Cash Flow A

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	1% SMM	
WAM	360	Default Rate	1% MDR	
		Recover after	12 months (time to liquidation)	
		Loss Severity	20.00%	

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Monthly Default Rate	Monthly Prepay Rate
337	17,229	183	2,363	0.1560	793	176	95	698	139	18	121	166	67	233	0.01	0.01
338	16,203	172	2,223	0.1497	782	165	94	689	131	17	114	155	64	220	0.01	0.01
339	15,206	162	2,086	0.1433	772	155	92	679	123	16	107	145	61	206	0.01	0.01
340	14,239	152	1,953	0.1370	761	145	91	670	115	15	100	135	59	194	0.01	0.01
341	13,299	142	1,824	0.1305	751	136	90	661	108	14	94	126	56	181	0.01	0.01
342	12,388	133	1,699	0.1241	741	126	89	652	101	13	88	116	53	169	0.01	0.01
343	11,503	124	1,578	0.1176	731	117	87	644	94	12	82	107	51	158	0.01	0.01
344	10,644	115	1,460	0.1110	721	109	86	635	87	11	76	98	48	147	0.01	0.01
345	9,812	106	1,346	0.1044	711	100	85	626	81	10	70	90	46	136	0.01	0.01
346	9,004	98	1,235	0.0978	702	92	84	618	74	10	65	82	43	125	0.01	0.01
347	8,220	90	1,128	0.0911	692	84	83	610	68	9	59	74	41	115	0.01	0.01
348	7,461	82	1,023	0.0844	683	76	82	601	62	8	54	66	39	105	0.01	0.01
349	6,793	0	854	0.0776	674	69	75	599	57	7	50	59	37	95	0.00	0.01
350	6,134	0	701	0.0708	665	62	68	597	51	6	45	51	34	86	0.00	0.01
351	5,483	0	563	0.0639	656	55	61	595	46	5	41	44	32	77	0.00	0.01
352	4,841	0	442	0.0570	647	49	54	593	40	4	37	37	30	68	0.00	0.01
353	4,207	0	336	0.0500	638	42	47	591	35	3	32	31	28	59	0.00	0.01
354	3,582	0	245	0.0430	629	36	40	589	30	2	28	24	27	51	0.00	0.01
355	2,965	0	169	0.0360	620	30	33	587	26	2	24	18	25	43	0.00	0.01
356	2,356	0	107	0.0289	612	24	26	585	21	1	20	12	23	35	0.00	0.01
357	1,755	0	60	0.0217	603	18	20	583	16	1	16	6	21	28	0.00	0.01
358	1,162	0	26	0.0145	594	12	13	581	12	0	12	1	20	20	0.00	0.01
359	577	0	7	0.0073	586	6	7	579	8	0	8	0	13	13	0.00	0.01
360	0	0	0	0.0000	577	0	0	577	4	0	4	0	7	7	0.00	0.00
Total		47,576,640			5,510,477	47,527,662	614,780	4,895,697				37,446,547	9,515,314	46,961,860		

02/01/99

Standard Default Methodology

Cash Flow B

Principal and Interest Are Advanced

WAC 8.00%		Prepay Rate	150% PSA	Recover after	12 months (time to liquidation)
WAM 360		Default Rate	100% SDA	Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
	100,000,000			1.0000													
1	99,906,219	1,667	1,666	0.9993	67,098	25,018	1	67,097	666,667	11	666,656				0.000200	0.000017	0.000250
2	99,785,306	3,331	4,993	0.9987	67,528	50,057	3	67,525	666,053	33	666,019				0.000400	0.000033	0.000501
3	99,637,279	4,991	9,977	0.9980	67,944	75,098	7	67,938	665,269	67	665,202				0.000600	0.000050	0.000753
4	99,462,179	6,645	16,611	0.9973	68,346	100,121	11	68,334	664,315	111	664,204				0.000800	0.000067	0.001006
5	99,260,067	8,292	24,886	0.9966	68,732	125,104	17	68,715	663,192	166	663,026				0.001000	0.000083	0.001259
6	99,031,028	9,931	34,793	0.9959	69,103	150,028	24	69,079	661,900	232	661,668				0.001200	0.000100	0.001513
7	98,775,168	11,561	46,321	0.9952	69,459	174,872	33	69,426	660,439	309	660,130				0.001400	0.000117	0.001767
8	98,492,616	13,180	59,459	0.9945	69,799	199,616	42	69,757	658,810	397	658,413				0.001600	0.000133	0.002022
9	98,183,522	14,786	74,192	0.9938	70,122	224,239	53	70,069	657,014	495	656,519				0.001800	0.000150	0.002278
10	97,848,057	16,379	90,506	0.9931	70,429	248,722	65	70,364	655,051	604	654,448				0.002000	0.000167	0.002535
11	97,486,418	17,957	108,385	0.9924	70,718	273,043	78	70,640	652,924	723	652,201				0.002200	0.000184	0.002792
12	97,098,818	19,519	127,811	0.9916	70,991	297,182	93	70,898	650,632	853	649,779				0.002400	0.000200	0.003051
13	96,685,496	21,063	147,113	0.9909	71,246	321,121	108	71,138	648,178	992	647,185	1,320	333	1,653	0.002600	0.000217	0.003310
14	96,246,710	22,589	166,276	0.9902	71,481	344,839	123	71,358	645,551	1,131	644,419	2,637	666	3,303	0.002800	0.000234	0.003569
15	95,782,739	24,095	185,285	0.9895	71,698	368,316	138	71,560	642,753	1,269	641,484	3,950	998	4,948	0.003000	0.000250	0.003830
16	95,293,884	25,580	204,123	0.9887	71,895	391,534	153	71,742	639,787	1,406	638,381	5,259	1,329	6,588	0.003200	0.000267	0.004091
17	94,780,464	27,042	222,776	0.9880	72,072	414,473	168	71,904	636,653	1,541	635,112	6,563	1,658	8,221	0.003400	0.000284	0.004353
18	94,242,822	28,481	241,228	0.9872	72,230	437,115	184	72,046	633,355	1,675	631,680	7,859	1,986	9,845	0.003600	0.000300	0.004615
19	93,681,317	29,896	259,465	0.9865	72,368	459,441	199	72,169	629,894	1,807	628,086	9,148	2,312	11,460	0.003800	0.000317	0.004879
20	93,096,328	31,285	277,471	0.9857	72,486	481,432	214	72,271	626,272	1,938	624,334	10,428	2,636	13,064	0.004000	0.000334	0.005143
21	92,488,255	32,647	295,233	0.9849	72,583	503,073	230	72,354	622,492	2,067	620,425	11,698	2,957	14,655	0.004200	0.000351	0.005408
22	91,857,515	33,981	312,736	0.9842	72,660	524,344	245	72,415	618,557	2,195	616,362	12,957	3,276	16,233	0.004400	0.000367	0.005674
23	91,204,543	35,287	329,967	0.9834	72,717	545,229	261	72,456	614,468	2,320	612,148	14,204	3,591	17,795	0.004600	0.000384	0.005940
24	90,529,791	36,562	346,911	0.9826	72,753	565,713	276	72,477	610,230	2,444	607,787	15,438	3,904	19,342	0.004800	0.000401	0.006208
25	89,833,729	37,807	363,556	0.9818	72,768	585,778	291	72,477	605,845	2,565	603,280	16,658	4,213	20,871	0.005000	0.000418	0.006476
26	89,116,843	39,021	379,889	0.9810	72,763	605,409	307	72,456	601,315	2,684	598,631	17,864	4,518	22,381	0.005200	0.000434	0.006745
27	88,379,636	40,202	395,897	0.9802	72,736	624,591	322	72,414	596,645	2,801	593,844	19,053	4,819	23,872	0.005400	0.000451	0.007014
28	87,622,624	41,350	411,569	0.9794	72,689	643,311	337	72,351	591,837	2,915	588,922	20,225	5,116	25,341	0.005600	0.000468	0.007285
29	86,846,340	42,464	426,892	0.9786	72,620	661,553	353	72,268	586,895	3,027	583,868	21,380	5,408	26,788	0.005800	0.000485	0.007556
30	86,051,329	43,543	441,856	0.9778	72,531	679,304	368	72,163	581,822	3,136	578,685	22,515	5,696	28,212	0.006000	0.000501	0.007828
31	85,263,063	43,144	455,009	0.9770	72,421	673,082	381	72,039	576,621	3,233	573,388	23,631	5,979	29,611	0.006000	0.000501	0.007828
32	84,481,486	42,749	466,380	0.9762	72,310	666,912	394	71,916	571,454	3,318	568,135	24,727	6,257	30,984	0.006000	0.000501	0.007828
33	83,706,543	42,357	476,002	0.9753	72,197	660,794	405	71,792	566,319	3,392	562,928	25,801	6,529	32,331	0.006000	0.000501	0.007828
34	82,938,177	41,969	483,906	0.9745	72,084	654,729	415	71,669	561,217	3,453	557,764	26,853	6,796	33,650	0.006000	0.000501	0.007828
35	82,176,333	41,584	490,126	0.9736	71,969	648,715	423	71,545	556,147	3,503	552,644	27,883	7,057	34,940	0.006000	0.000501	0.007828
36	81,420,958	41,202	494,697	0.9728	71,853	642,751	431	71,422	551,110	3,542	547,568	28,888	7,312	36,200	0.006000	0.000501	0.007828
37	80,671,996	40,823	497,653	0.9719	71,736	636,839	436	71,300	546,104	3,570	542,534	29,869	7,561	37,430	0.006000	0.000501	0.007828
38	79,929,395	40,447	499,030	0.9711	71,618	630,977	441	71,177	541,131	3,587	537,544	30,825	7,804	38,629	0.006000	0.000501	0.007828
39	79,193,100	40,075	498,866	0.9702	71,499	625,164	444	71,055	536,190	3,594	532,595	31,755	8,040	39,795	0.006000	0.000501	0.007828
40	78,463,060	39,706	497,198	0.9694	71,379	619,401	446	70,933	531,280	3,590	527,689	32,658	8,270	40,928	0.006000	0.000501	0.007828
41	77,739,222	39,340	494,063	0.9685	71,257	613,687	447	70,811	526,402	3,577	522,825	33,535	8,493	42,028	0.006000	0.000501	0.007828
42	77,021,535	38,977	489,502	0.9676	71,135	608,022	446	70,689	521,555	3,554	518,002	34,384	8,709	43,092	0.006000	0.000501	0.007828
43	76,309,946	38,617	484,980	0.9667	71,013	602,404	445	70,568	516,740	3,521	513,219	34,066	8,629	42,695	0.006000	0.000501	0.007828
44	75,604,405	38,260	480,496	0.9658	70,891	596,835	444	70,446	511,966	3,488	508,478	33,750	8,550	42,300	0.006000	0.000501	0.007828
45	74,904,860	37,907	476,050	0.9649	70,769	591,312	443	70,325	507,233	3,456	503,777	33,438	8,471	41,909	0.006000	0.000501	0.007828
46	74,211,263	37,556	471,642	0.9640	70,647	585,837	443	70,204	502,539	3,424	499,115	33,127	8,394	41,521	0.006000	0.000501	0.007828
47	73,523,563	37,208	467,271	0.9631	70,526	580,408	442	70,084	497,886	3,392	494,494	32,820	8,317	41,137	0.006000	0.000501	0.007828
48	72,841,712	36,863	462,938	0.9622	70,404	575,025	441	69,963	493,272	3,361	489,911	32,515	8,240	40,756	0.006000	0.000501	0.007828

Standard Default Methodology

Cash Flow B

Principal and Interest Are Advanced

	WAC	8.00%		Prepay Rate	150% PSA		Recover after	12 months (time to liquidation)
	WAM	360		Default Rate	100% SDA		Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
49	72,165,659	36,521	458,641	0.9613	70,283	569,689	440	69,843	488,698	3,330	485,368	32,213	8,165	40,378	0.006000	0.000501	0.007828
50	71,495,356	36,182	454,381	0.9603	70,163	564,397	440	69,723	484,162	3,299	480,863	31,913	8,089	40,003	0.006000	0.000501	0.007828
51	70,830,756	35,846	450,157	0.9594	70,042	559,151	439	69,603	479,665	3,268	476,397	31,616	8,015	39,631	0.006000	0.000501	0.007828
52	70,171,811	35,513	445,969	0.9585	69,922	553,949	438	69,484	475,206	3,238	471,968	31,322	7,941	39,263	0.006000	0.000501	0.007828
53	69,518,472	35,183	441,817	0.9575	69,802	548,791	437	69,364	470,785	3,208	467,578	31,030	7,868	38,898	0.006000	0.000501	0.007828
54	68,870,695	34,855	437,700	0.9566	69,682	543,677	437	69,245	466,402	3,178	463,224	30,740	7,795	38,535	0.006000	0.000501	0.007828
55	68,228,431	34,530	433,618	0.9556	69,562	538,607	436	69,126	462,056	3,148	458,908	30,453	7,723	38,176	0.006000	0.000501	0.007828
56	67,591,635	34,208	429,571	0.9546	69,442	533,580	435	69,007	457,747	3,119	454,628	30,168	7,652	37,820	0.006000	0.000501	0.007828
57	66,960,261	33,889	425,559	0.9537	69,323	528,596	434	68,889	453,475	3,090	450,385	29,886	7,581	37,467	0.006000	0.000501	0.007828
58	66,334,264	33,573	421,580	0.9527	69,204	523,654	434	68,770	449,239	3,061	446,178	29,606	7,511	37,117	0.006000	0.000501	0.007828
59	65,713,599	33,259	417,636	0.9517	69,085	518,755	433	68,652	445,039	3,032	442,007	29,329	7,442	36,770	0.006000	0.000501	0.007828
60	65,098,221	32,948	413,725	0.9507	68,966	513,897	432	68,534	440,875	3,004	437,871	29,054	7,373	36,426	0.006000	0.000501	0.007828
61	64,488,603	32,121	409,329	0.9497	68,848	509,080	431	68,417	436,746	2,972	433,774	28,781	7,304	36,085	0.005905	0.000493	0.007828
62	63,884,687	31,307	404,460	0.9487	68,729	504,309	429	68,300	432,653	2,938	429,715	28,511	7,236	35,747	0.005810	0.000485	0.007828
63	63,286,415	30,505	399,127	0.9477	68,611	499,582	427	68,184	428,594	2,900	425,695	28,242	7,169	35,412	0.005715	0.000478	0.007828
64	62,693,730	29,716	393,340	0.9467	68,493	494,900	424	68,069	424,570	2,859	421,711	27,977	7,103	35,079	0.005620	0.000470	0.007828
65	62,106,576	28,939	387,108	0.9456	68,375	490,261	420	67,955	420,580	2,815	417,765	27,713	7,037	34,750	0.005525	0.000462	0.007828
66	61,524,896	28,173	380,443	0.9446	68,258	485,665	416	67,842	416,625	2,769	413,856	27,452	6,971	34,423	0.005430	0.000454	0.007828
67	60,948,635	27,420	373,353	0.9436	68,141	481,112	412	67,729	412,702	2,719	409,983	27,193	6,906	34,099	0.005335	0.000446	0.007828
68	60,377,737	26,678	365,847	0.9425	68,023	476,602	407	67,617	408,813	2,667	406,146	26,936	6,842	33,777	0.005240	0.000438	0.007828
69	59,812,150	25,948	357,936	0.9415	67,906	472,134	401	67,505	404,957	2,612	402,345	26,681	6,778	33,459	0.005145	0.000430	0.007828
70	59,251,819	25,229	349,627	0.9404	67,789	467,707	395	67,395	401,134	2,554	398,579	26,429	6,715	33,143	0.005050	0.000422	0.007828
71	58,696,691	24,522	340,931	0.9393	67,673	463,321	388	67,285	397,343	2,494	394,849	26,178	6,652	32,830	0.004955	0.000414	0.007828
72	58,146,714	23,825	331,857	0.9383	67,556	458,976	380	67,176	393,584	2,432	391,152	25,930	6,590	32,519	0.004860	0.000406	0.007828
73	57,601,835	23,140	322,923	0.9372	67,440	454,672	373	67,067	389,857	2,367	387,490	25,276	6,424	31,700	0.004765	0.000398	0.007828
74	57,062,004	22,465	314,129	0.9361	67,325	450,407	366	66,960	386,165	2,303	383,862	24,632	6,261	30,894	0.004670	0.000390	0.007828
75	56,527,169	21,801	305,471	0.9350	67,211	446,182	358	66,853	382,508	2,240	380,268	23,999	6,101	30,100	0.004575	0.000382	0.007828
76	55,997,280	21,147	296,949	0.9339	67,097	441,996	351	66,746	378,884	2,177	376,707	23,375	5,943	29,318	0.004480	0.000374	0.007828
77	55,472,287	20,504	288,561	0.9328	66,984	437,848	344	66,641	375,295	2,116	373,179	22,760	5,788	28,548	0.004385	0.000366	0.007828
78	54,952,142	19,870	280,305	0.9316	66,872	433,739	337	66,536	371,739	2,056	369,683	22,155	5,635	27,790	0.004290	0.000358	0.007828
79	54,436,795	19,247	272,179	0.9305	66,761	429,668	330	66,431	368,216	1,997	366,219	21,560	5,484	27,044	0.004195	0.000350	0.007828
80	53,926,198	18,634	264,181	0.9294	66,650	425,635	322	66,328	364,726	1,939	362,788	20,974	5,336	26,310	0.004100	0.000342	0.007828
81	53,420,304	18,031	256,310	0.9282	66,540	421,638	315	66,225	361,269	1,881	359,388	20,397	5,190	25,587	0.004005	0.000334	0.007828
82	52,919,065	17,437	248,563	0.9271	66,431	417,679	308	66,123	357,844	1,825	356,019	19,829	5,046	24,875	0.003910	0.000326	0.007828
83	52,422,434	16,853	240,941	0.9259	66,322	413,756	301	66,021	354,451	1,769	352,681	19,271	4,904	24,175	0.003815	0.000318	0.007828
84	51,930,367	16,279	233,440	0.9248	66,215	409,869	294	65,921	351,089	1,715	349,374	18,721	4,765	23,486	0.003720	0.000311	0.007828
85	51,442,815	15,713	226,059	0.9236	66,107	406,017	287	65,820	347,759	1,661	346,098	18,179	4,628	22,807	0.003625	0.000303	0.007828
86	50,959,736	15,157	218,797	0.9224	66,001	402,201	280	65,721	344,459	1,608	342,851	17,647	4,493	22,140	0.003530	0.000295	0.007828
87	50,481,083	14,610	211,651	0.9212	65,895	398,420	273	65,622	341,190	1,556	339,634	17,122	4,360	21,483	0.003435	0.000287	0.007828
88	50,006,812	14,072	204,622	0.9200	65,790	394,674	266	65,524	337,952	1,505	336,447	16,607	4,229	20,836	0.003340	0.000279	0.007828
89	49,536,881	13,543	197,706	0.9188	65,686	390,962	259	65,427	334,743	1,454	333,288	16,099	4,101	20,200	0.003245	0.000271	0.007828
90	49,071,244	13,022	190,902	0.9176	65,582	387,284	252	65,330	331,564	1,405	330,159	15,600	3,974	19,574	0.003150	0.000263	0.007828
91	48,609,861	12,510	184,210	0.9164	65,479	383,640	245	65,234	328,414	1,356	327,058	15,108	3,849	18,958	0.003055	0.000255	0.007828
92	48,152,687	12,007	177,626	0.9152	65,377	380,028	238	65,139	325,294	1,308	323,986	14,625	3,727	18,352	0.002960	0.000247	0.007828
93	47,699,682	11,512	171,151	0.9139	65,275	376,450	232	65,044	322,202	1,261	320,941	14,149	3,606	17,755	0.002865	0.000239	0.007828
94	47,250,803	11,025	164,783	0.9127	65,174	372,905	225	64,950	319,139	1,215	317,924	13,681	3,487	17,169	0.002770	0.000231	0.007828
95	46,806,009	10,546	158,519	0.9114	65,074	369,391	218	64,856	316,104	1,169	314,935	13,221	3,371	16,591	0.002675	0.000223	0.007828
96	46,365,260	10,075	152,359	0.9102	64,975	365,910	211	64,763	313,097	1,124	311,973	12,768	3,256	16,024	0.002580	0.000215	0.007828

Standard Default Methodology

Cash Flow B

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	150% PSA	Recover after	12 months (time to liquidation)	
WAM	360	Default Rate	100% SDA	Loss Severity	20.00%	

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
97	45,928,516	9,612	146,302	0.9089	64,876	362,460	204	64,671	310,117	1,080	309,038	12,323	3,143	15,465	0.002485	0.000207	0.007828
98	45,495,737	9,157	140,346	0.9076	64,778	359,042	198	64,580	307,165	1,036	306,129	11,885	3,031	14,916	0.002390	0.000199	0.007828
99	45,066,883	8,710	134,489	0.9063	64,680	355,655	191	64,489	304,241	994	303,247	11,454	2,922	14,376	0.002295	0.000191	0.007828
100	44,641,915	8,271	128,731	0.9050	64,583	352,298	184	64,399	301,342	952	300,391	11,030	2,814	13,845	0.002200	0.000184	0.007828
101	44,220,795	7,839	123,069	0.9037	64,487	348,972	178	64,309	298,471	910	297,561	10,614	2,709	13,322	0.002105	0.000176	0.007828
102	43,803,485	7,414	117,504	0.9024	64,391	345,676	171	64,220	295,626	870	294,756	10,204	2,604	12,808	0.002010	0.000168	0.007828
103	43,389,947	6,996	112,033	0.9011	64,296	342,410	164	64,132	292,807	830	291,977	9,801	2,502	12,303	0.001915	0.000160	0.007828
104	42,980,143	6,586	106,655	0.8998	64,202	339,173	158	64,044	290,013	791	289,222	9,405	2,401	11,806	0.001820	0.000152	0.007828
105	42,574,036	6,183	101,369	0.8984	64,108	335,966	151	63,957	287,245	752	286,493	9,016	2,302	11,318	0.001725	0.000144	0.007828
106	42,171,591	5,787	96,174	0.8971	64,015	332,787	145	63,871	284,503	714	283,788	8,633	2,205	10,838	0.001630	0.000136	0.007828
107	41,772,770	5,398	91,069	0.8957	63,923	329,638	138	63,785	281,785	677	281,108	8,256	2,109	10,366	0.001535	0.000128	0.007828
108	41,377,537	5,016	86,052	0.8944	63,831	326,516	131	63,700	279,092	641	278,452	7,887	2,015	9,902	0.001440	0.000120	0.007828
109	40,985,859	4,641	81,122	0.8930	63,740	323,423	125	63,616	276,424	605	275,819	7,523	1,922	9,445	0.001345	0.000112	0.007828
110	40,597,698	4,272	76,279	0.8916	63,650	320,357	118	63,532	273,780	569	273,211	7,166	1,831	8,997	0.001250	0.000104	0.007828
111	40,213,021	3,910	71,520	0.8902	63,560	317,319	112	63,448	271,160	535	270,625	6,814	1,742	8,556	0.001155	0.000096	0.007828
112	39,831,793	3,554	66,845	0.8888	63,471	314,308	106	63,366	268,564	500	268,063	6,469	1,654	8,123	0.001060	0.000088	0.007828
113	39,453,981	3,205	62,252	0.8874	63,383	311,325	99	63,284	265,991	467	265,524	6,130	1,568	7,698	0.000965	0.000080	0.007828
114	39,079,549	2,862	57,741	0.8860	63,295	308,368	93	63,202	263,442	434	263,007	5,797	1,483	7,280	0.000870	0.000073	0.007828
115	38,708,466	2,525	53,311	0.8845	63,208	305,437	86	63,121	260,915	402	260,513	5,470	1,399	6,869	0.000775	0.000065	0.007828
116	38,340,698	2,194	48,960	0.8831	63,121	302,533	80	63,041	258,412	370	258,042	5,148	1,317	6,465	0.000680	0.000057	0.007828
117	37,976,213	1,870	44,687	0.8817	63,035	299,654	74	62,961	255,931	339	255,592	4,832	1,237	6,069	0.000585	0.000049	0.007828
118	37,614,978	1,551	40,492	0.8802	62,950	296,801	67	62,882	253,473	308	253,164	4,522	1,157	5,679	0.000490	0.000041	0.007828
119	37,256,962	1,238	36,373	0.8787	62,865	293,974	61	62,804	251,036	278	250,758	4,217	1,080	5,297	0.000395	0.000033	0.007828
120	36,902,132	932	32,329	0.8772	62,781	291,172	55	62,726	248,622	249	248,374	3,918	1,003	4,921	0.000300	0.000025	0.007828
121	36,550,166	923	28,652	0.8758	62,697	288,395	49	62,648	246,230	222	246,008	3,624	928	4,552	0.000300	0.000025	0.007828
122	36,201,041	914	25,333	0.8743	62,614	285,640	43	62,571	243,859	197	243,662	3,335	854	4,189	0.000300	0.000025	0.007828
123	35,854,735	905	22,366	0.8727	62,532	282,908	39	62,493	241,509	175	241,334	3,052	782	3,834	0.000300	0.000025	0.007828
124	35,511,225	896	19,743	0.8712	62,450	280,197	34	62,416	239,181	155	239,026	2,773	711	3,484	0.000300	0.000025	0.007828
125	35,170,490	888	17,459	0.8697	62,369	277,509	31	62,339	236,873	138	236,736	2,500	641	3,141	0.000300	0.000025	0.007828
126	34,832,507	879	15,507	0.8682	62,289	274,842	28	62,261	234,586	122	234,464	2,232	572	2,804	0.000300	0.000025	0.007828
127	34,497,256	871	13,879	0.8666	62,209	272,197	25	62,184	232,320	109	232,211	1,969	505	2,474	0.000300	0.000025	0.007828
128	34,164,713	863	12,569	0.8651	62,130	269,573	23	62,107	230,074	98	229,976	1,711	439	2,150	0.000300	0.000025	0.007828
129	33,834,859	854	11,571	0.8635	62,051	266,970	21	62,030	227,849	89	227,759	1,457	374	1,831	0.000300	0.000025	0.007828
130	33,507,671	846	10,878	0.8619	61,973	264,388	20	61,953	225,643	83	225,560	1,209	310	1,519	0.000300	0.000025	0.007828
131	33,183,129	838	10,484	0.8603	61,896	261,828	19	61,876	223,457	78	223,379	965	248	1,213	0.000300	0.000025	0.007828
132	32,861,212	830	10,382	0.8587	61,819	259,288	19	61,800	221,291	75	221,215	726	186	912	0.000300	0.000025	0.007828
133	32,541,899	822	10,281	0.8571	61,743	256,768	19	61,723	219,144	75	219,069	719	185	903	0.000300	0.000025	0.007828
134	32,225,169	814	10,181	0.8555	61,666	254,269	19	61,647	217,015	74	216,941	712	183	894	0.000300	0.000025	0.007828
135	31,911,003	806	10,082	0.8538	61,590	251,790	19	61,570	214,902	73	214,829	705	181	886	0.000300	0.000025	0.007828
136	31,599,380	798	9,983	0.8522	61,513	249,331	19	61,494	212,807	73	212,735	698	179	877	0.000300	0.000025	0.007828
137	31,290,280	790	9,886	0.8505	61,437	246,892	19	61,418	210,729	72	210,657	691	178	868	0.000300	0.000025	0.007828
138	30,983,682	782	9,789	0.8489	61,361	244,473	19	61,342	208,668	71	208,597	684	176	860	0.000300	0.000025	0.007828
139	30,679,568	775	9,693	0.8472	61,285	242,074	19	61,266	206,623	70	206,553	677	174	852	0.000300	0.000025	0.007828
140	30,377,918	767	9,597	0.8455	61,209	239,694	19	61,190	204,595	70	204,525	671	173	843	0.000300	0.000025	0.007828
141	30,078,711	760	9,503	0.8438	61,133	237,333	19	61,114	202,583	69	202,514	664	171	835	0.000300	0.000025	0.007828
142	29,781,930	752	9,409	0.8421	61,057	234,991	19	61,038	200,588	68	200,520	658	169	827	0.000300	0.000025	0.007828
143	29,487,555	745	9,316	0.8404	60,982	232,668	19	60,963	198,609	68	198,541	651	168	819	0.000300	0.000025	0.007828
144	29,195,566	737	9,224	0.8386	60,906	230,364	19	60,887	196,646	67	196,579	645	166	810	0.000300	0.000025	0.007828

Standard Default Methodology   Cash Flow B

Principal and Interest Are Advanced

The Bond Market Association

Uniform Practices/Standard Formulas

	WAC	8.00%		Prepay Rate	150% PSA		Recover after	12 months (time to liquidation)
	WAM	360		Default Rate	100% SDA		Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
145	28,905,945	730	9,132	0.8369	60,831	228,079	19	60,812	194,699	66	194,632	638	164	802	0.000300	0.000025	0.007828
146	28,618,674	723	9,042	0.8351	60,755	225,812	19	60,736	192,767	66	192,701	632	163	794	0.000300	0.000025	0.007828
147	28,333,733	716	8,952	0.8333	60,680	223,564	19	60,661	190,851	65	190,786	625	161	787	0.000300	0.000025	0.007828
148	28,051,104	708	8,862	0.8316	60,605	221,334	19	60,586	188,951	64	188,887	619	160	779	0.000300	0.000025	0.007828
149	27,770,770	701	8,774	0.8298	60,530	219,122	19	60,511	187,066	64	187,003	613	158	771	0.000300	0.000025	0.007828
150	27,492,712	694	8,686	0.8280	60,455	216,928	19	60,436	185,197	63	185,134	607	156	763	0.000300	0.000025	0.007828
151	27,216,912	687	8,599	0.8261	60,380	214,752	19	60,361	183,343	62	183,280	601	155	756	0.000300	0.000025	0.007828
152	26,943,351	681	8,512	0.8243	60,305	212,593	19	60,286	181,503	62	181,442	595	153	748	0.000300	0.000025	0.007828
153	26,672,014	674	8,427	0.8225	60,230	210,453	19	60,211	179,679	61	179,618	589	152	741	0.000300	0.000025	0.007828
154	26,402,881	667	8,342	0.8206	60,156	208,329	19	60,137	177,870	61	177,809	583	150	733	0.000300	0.000025	0.007828
155	26,135,936	660	8,257	0.8188	60,081	206,223	19	60,062	176,075	60	176,015	577	149	726	0.000300	0.000025	0.007828
156	25,871,161	653	8,174	0.8169	60,007	204,133	19	59,988	174,295	59	174,235	571	147	718	0.000300	0.000025	0.007828
157	25,608,539	647	8,091	0.8150	59,932	202,061	19	59,914	172,529	59	172,470	565	146	711	0.000300	0.000025	0.007828
158	25,348,054	640	8,008	0.8131	59,858	200,006	19	59,839	170,778	58	170,719	559	145	704	0.000300	0.000025	0.007828
159	25,089,687	634	7,927	0.8112	59,784	197,967	19	59,765	169,040	58	168,983	554	143	697	0.000300	0.000025	0.007828
160	24,833,424	627	7,846	0.8092	59,710	195,945	19	59,691	167,317	57	167,260	548	142	690	0.000300	0.000025	0.007828
161	24,579,246	621	7,765	0.8073	59,636	193,940	19	59,617	165,608	56	165,552	542	140	683	0.000300	0.000025	0.007828
162	24,327,137	615	7,686	0.8053	59,562	191,951	19	59,543	163,913	56	163,858	537	139	676	0.000300	0.000025	0.007828
163	24,077,082	608	7,607	0.8034	59,488	189,977	19	59,470	162,232	55	162,177	531	137	669	0.000300	0.000025	0.007828
164	23,829,064	602	7,528	0.8014	59,414	188,021	19	59,396	160,565	55	160,510	526	136	662	0.000300	0.000025	0.007828
165	23,583,066	596	7,451	0.7994	59,341	186,080	19	59,322	158,911	54	158,856	520	135	655	0.000300	0.000025	0.007828
166	23,339,074	590	7,374	0.7974	59,267	184,154	19	59,249	157,270	54	157,217	515	133	648	0.000300	0.000025	0.007828
167	23,097,070	584	7,297	0.7954	59,194	182,245	19	59,175	155,643	53	155,590	509	132	641	0.000300	0.000025	0.007828
168	22,857,040	578	7,221	0.7933	59,120	180,351	19	59,102	154,029	52	153,977	504	131	635	0.000300	0.000025	0.007828
169	22,618,967	572	7,146	0.7913	59,047	178,472	19	59,029	152,428	52	152,376	499	129	628	0.000300	0.000025	0.007828
170	22,382,837	566	7,072	0.7892	58,974	176,609	18	58,956	150,841	51	150,789	494	128	622	0.000300	0.000025	0.007828
171	22,148,633	560	6,998	0.7871	58,901	174,761	18	58,883	149,266	51	149,215	488	127	615	0.000300	0.000025	0.007828
172	21,916,341	554	6,924	0.7850	58,828	172,928	18	58,810	147,704	50	147,654	483	125	609	0.000300	0.000025	0.007828
173	21,685,946	548	6,851	0.7829	58,755	171,111	18	58,737	146,155	50	146,105	478	124	602	0.000300	0.000025	0.007828
174	21,457,432	542	6,779	0.7808	58,682	169,307	18	58,664	144,619	49	144,569	473	123	596	0.000300	0.000025	0.007828
175	21,230,786	537	6,708	0.7787	58,610	167,519	18	58,591	143,095	49	143,046	468	122	590	0.000300	0.000025	0.007828
176	21,005,991	531	6,637	0.7765	58,537	165,745	18	58,519	141,583	48	141,535	463	120	584	0.000300	0.000025	0.007828
177	20,783,033	525	6,566	0.7744	58,464	163,986	18	58,446	140,084	48	140,036	458	119	577	0.000300	0.000025	0.007828
178	20,561,899	520	6,496	0.7722	58,392	162,241	18	58,374	138,597	47	138,550	453	118	571	0.000300	0.000025	0.007828
179	20,342,572	514	6,427	0.7700	58,320	160,511	18	58,301	137,123	47	137,076	448	117	565	0.000300	0.000025	0.007828
180	20,125,040	509	6,358	0.7678	58,247	158,794	18	58,229	135,660	46	135,614	444	116	559	0.000300	0.000025	0.007828
181	19,909,288	503	6,290	0.7656	58,175	157,092	18	58,157	134,209	46	134,164	439	114	553	0.000300	0.000025	0.007828
182	19,695,302	498	6,222	0.7634	58,103	155,404	18	58,085	132,771	45	132,725	434	113	547	0.000300	0.000025	0.007828
183	19,483,067	492	6,155	0.7611	58,031	153,729	18	58,013	131,343	45	131,299	429	112	541	0.000300	0.000025	0.007828
184	19,272,571	487	6,089	0.7589	57,959	152,068	18	57,941	129,928	44	129,884	425	111	535	0.000300	0.000025	0.007828
185	19,063,799	482	6,023	0.7566	57,887	150,421	18	57,869	128,524	44	128,481	420	110	530	0.000300	0.000025	0.007828
186	18,856,738	477	5,958	0.7543	57,816	148,787	18	57,798	127,132	43	127,089	416	108	524	0.000300	0.000025	0.007828
187	18,651,374	471	5,893	0.7520	57,744	147,167	18	57,726	125,751	43	125,708	411	107	518	0.000300	0.000025	0.007828
188	18,447,694	466	5,828	0.7496	57,672	145,559	18	57,654	124,382	42	124,339	406	106	513	0.000300	0.000025	0.007828
189	18,245,684	461	5,764	0.7473	57,601	143,966	18	57,583	123,023	42	122,982	402	105	507	0.000300	0.000025	0.007828
190	18,045,332	456	5,701	0.7449	57,530	142,385	18	57,512	121,676	41	121,635	398	104	501	0.000300	0.000025	0.007828
191	17,846,623	451	5,638	0.7426	57,458	140,817	18	57,440	120,340	41	120,299	393	103	496	0.000300	0.000025	0.007828
192	17,649,546	446	5,576	0.7402	57,387	139,262	18	57,369	119,015	41	118,975	389	102	491	0.000300	0.000025	0.007828

Standard Default Methodology

Cash Flow B

Principal and Interest Are Advanced

	WAC	8.00%		Prepay Rate	150% PSA		Recover after	12 months (time to liquidation)
	WAM	360		Default Rate	100% SDA		Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
193	17,454,087	441	5,514	0.7378	57,316	137,720	18	57,298	117,701	40	117,661	384	101	485	0.000300	0.000025	0.007828
194	17,260,234	436	5,453	0.7354	57,245	136,190	18	57,227	116,397	40	116,358	380	100	480	0.000300	0.000025	0.007828
195	17,067,973	432	5,392	0.7329	57,174	134,673	18	57,156	115,105	39	115,065	376	98	474	0.000300	0.000025	0.007828
196	16,877,293	427	5,332	0.7305	57,103	133,168	18	57,085	113,822	39	113,784	372	97	469	0.000300	0.000025	0.007828
197	16,688,180	422	5,272	0.7280	57,032	131,676	18	57,015	112,551	38	112,512	367	96	464	0.000300	0.000025	0.007828
198	16,500,622	417	5,213	0.7255	56,962	130,196	18	56,944	111,290	38	111,252	363	95	459	0.000300	0.000025	0.007828
199	16,314,608	413	5,154	0.7230	56,891	128,729	18	56,873	110,039	38	110,001	359	94	454	0.000300	0.000025	0.007828
200	16,130,124	408	5,096	0.7205	56,821	127,273	18	56,803	108,798	37	108,761	355	93	448	0.000300	0.000025	0.007828
201	15,947,159	403	5,038	0.7180	56,750	125,829	18	56,733	107,568	37	107,531	351	92	443	0.000300	0.000025	0.007828
202	15,765,701	399	4,981	0.7154	56,680	124,397	18	56,662	106,348	36	106,312	347	91	438	0.000300	0.000025	0.007828
203	15,585,737	394	4,924	0.7129	56,610	122,977	18	56,592	105,138	36	105,102	343	90	433	0.000300	0.000025	0.007828
204	15,407,256	390	4,868	0.7103	56,540	121,569	18	56,522	103,938	35	103,902	339	89	428	0.000300	0.000025	0.007828
205	15,230,246	385	4,812	0.7077	56,470	120,173	18	56,452	102,747	35	102,712	335	88	423	0.000300	0.000025	0.007828
206	15,054,696	381	4,756	0.7051	56,400	118,787	18	56,382	101,567	35	101,532	331	87	419	0.000300	0.000025	0.007828
207	14,880,594	376	4,701	0.7024	56,330	117,414	18	56,312	100,396	34	100,362	327	86	414	0.000300	0.000025	0.007828
208	14,707,928	372	4,647	0.6998	56,260	116,051	18	56,242	99,235	34	99,201	324	85	409	0.000300	0.000025	0.007828
209	14,536,688	368	4,593	0.6971	56,190	114,700	18	56,173	98,084	33	98,050	320	84	404	0.000300	0.000025	0.007828
210	14,366,861	363	4,539	0.6944	56,121	113,360	18	56,103	96,942	33	96,909	316	83	400	0.000300	0.000025	0.007828
211	14,198,438	359	4,486	0.6917	56,051	112,031	18	56,033	95,809	33	95,777	312	83	395	0.000300	0.000025	0.007828
212	14,031,405	355	4,433	0.6890	55,982	110,713	18	55,964	94,686	32	94,654	309	82	390	0.000300	0.000025	0.007828
213	13,865,754	351	4,381	0.6862	55,912	109,406	18	55,895	93,572	32	93,540	305	81	386	0.000300	0.000025	0.007828
214	13,701,472	347	4,329	0.6835	55,843	108,110	17	55,825	92,468	32	92,436	301	80	381	0.000300	0.000025	0.007828
215	13,538,548	343	4,277	0.6807	55,774	106,824	17	55,756	91,372	31	91,341	298	79	377	0.000300	0.000025	0.007828
216	13,376,973	339	4,226	0.6779	55,705	105,549	17	55,687	90,286	31	90,255	294	78	372	0.000300	0.000025	0.007828
217	13,216,735	334	4,176	0.6751	55,636	104,285	17	55,618	89,208	30	89,178	291	77	368	0.000300	0.000025	0.007828
218	13,057,824	330	4,125	0.6722	55,567	103,031	17	55,549	88,139	30	88,109	287	76	363	0.000300	0.000025	0.007828
219	12,900,230	326	4,076	0.6694	55,498	101,788	17	55,480	87,080	30	87,050	284	75	359	0.000300	0.000025	0.007828
220	12,743,941	323	4,026	0.6665	55,429	100,555	17	55,412	86,029	29	85,999	280	74	355	0.000300	0.000025	0.007828
221	12,588,947	319	3,977	0.6636	55,360	99,332	17	55,343	84,986	29	84,957	277	74	350	0.000300	0.000025	0.007828
222	12,435,239	315	3,929	0.6607	55,292	98,119	17	55,274	83,953	29	83,924	273	73	346	0.000300	0.000025	0.007828
223	12,282,806	311	3,881	0.6577	55,223	96,916	17	55,206	82,928	28	82,900	270	72	342	0.000300	0.000025	0.007828
224	12,131,638	307	3,833	0.6548	55,155	95,723	17	55,138	81,911	28	81,883	267	71	338	0.000300	0.000025	0.007828
225	11,981,725	303	3,785	0.6518	55,086	94,540	17	55,069	80,903	28	80,876	263	70	333	0.000300	0.000025	0.007828
226	11,833,057	300	3,738	0.6488	55,018	93,367	17	55,001	79,903	27	79,876	260	69	329	0.000300	0.000025	0.007828
227	11,685,625	296	3,692	0.6458	54,950	92,204	17	54,933	78,912	27	78,885	257	69	325	0.000300	0.000025	0.007828
228	11,539,417	292	3,646	0.6428	54,882	91,050	17	54,865	77,929	27	77,902	253	68	321	0.000300	0.000025	0.007828
229	11,394,425	289	3,600	0.6397	54,814	89,906	17	54,797	76,954	26	76,928	250	67	317	0.000300	0.000025	0.007828
230	11,250,640	285	3,554	0.6367	54,746	88,772	17	54,729	75,987	26	75,961	247	66	313	0.000300	0.000025	0.007828
231	11,108,051	281	3,509	0.6336	54,678	87,647	17	54,661	75,028	26	75,002	244	65	309	0.000300	0.000025	0.007828
232	10,966,648	278	3,465	0.6304	54,610	86,531	17	54,593	74,077	25	74,052	241	65	305	0.000300	0.000025	0.007828
233	10,826,424	274	3,420	0.6273	54,543	85,425	17	54,526	73,134	25	73,109	238	64	301	0.000300	0.000025	0.007828
234	10,687,368	271	3,377	0.6242	54,475	84,327	17	54,458	72,199	25	72,174	235	63	298	0.000300	0.000025	0.007828
235	10,549,470	267	3,333	0.6210	54,408	83,239	17	54,391	71,272	24	71,247	232	62	294	0.000300	0.000025	0.007828
236	10,412,723	264	3,290	0.6178	54,340	82,160	17	54,323	70,352	24	70,328	229	61	290	0.000300	0.000025	0.007828
237	10,277,116	260	3,247	0.6146	54,273	81,090	17	54,256	69,440	24	69,416	226	61	286	0.000300	0.000025	0.007828
238	10,142,641	257	3,204	0.6113	54,206	80,029	17	54,189	68,536	23	68,512	223	60	282	0.000300	0.000025	0.007828
239	10,009,289	254	3,162	0.6081	54,139	78,977	17	54,122	67,639	23	67,616	220	59	279	0.000300	0.000025	0.007828
240	9,877,050	250	3,121	0.6048	54,071	77,934	17	54,055	66,750	23	66,727	217	58	275	0.000300	0.000025	0.007828

Standard Default Methodology

Cash Flow B

Principal and Interest Are Advanced

| | WAC | 8.00% | | | Prepay Rate | 150% PSA | | Recover after | 12 months (time to liquidation) |
| WAM | 360 | | | Default Rate | 100% SDA | | Loss Severity | 20.00% | |

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
241	9,745,917	247	3,079	0.6015	54,004	76,899	17	53,988	65,868	22	65,845	214	58	271	0.000300	0.000025	0.007828
242	9,615,879	244	3,038	0.5981	53,938	75,873	17	53,921	64,993	22	64,971	211	57	268	0.000300	0.000025	0.007828
243	9,486,930	240	2,997	0.5948	53,871	74,856	17	53,854	64,126	22	64,104	208	56	264	0.000300	0.000025	0.007828
244	9,359,059	237	2,957	0.5914	53,804	73,847	17	53,787	63,266	22	63,245	205	56	261	0.000300	0.000025	0.007828
245	9,232,258	234	2,917	0.5880	53,737	72,846	17	53,720	62,413	21	62,392	202	55	257	0.000300	0.000025	0.007828
246	9,106,520	231	2,877	0.5846	53,671	71,854	17	53,654	61,568	21	61,547	200	54	254	0.000300	0.000025	0.007828
247	8,981,834	228	2,838	0.5812	53,604	70,870	17	53,587	60,729	21	60,709	197	53	250	0.000300	0.000025	0.007828
248	8,858,194	225	2,799	0.5777	53,538	69,895	17	53,521	59,898	20	59,877	194	53	247	0.000300	0.000025	0.007828
249	8,735,591	221	2,760	0.5742	53,471	68,927	17	53,455	59,073	20	59,053	191	52	243	0.000300	0.000025	0.007828
250	8,614,016	218	2,721	0.5707	53,405	67,968	17	53,388	58,256	20	58,236	189	51	240	0.000300	0.000025	0.007828
251	8,493,462	215	2,683	0.5672	53,339	67,017	17	53,322	57,445	20	57,425	186	51	237	0.000300	0.000025	0.007828
252	8,373,920	212	2,646	0.5636	53,273	66,073	17	53,256	56,641	19	56,622	183	50	233	0.000300	0.000025	0.007828
253	8,255,382	209	2,608	0.5600	53,207	65,138	17	53,190	55,844	19	55,825	181	49	230	0.000300	0.000025	0.007828
254	8,137,840	206	2,571	0.5564	53,141	64,211	17	53,124	55,053	19	55,035	178	49	227	0.000300	0.000025	0.007828
255	8,021,287	203	2,534	0.5528	53,075	63,291	17	53,058	54,269	18	54,251	176	48	224	0.000300	0.000025	0.007828
256	7,905,715	201	2,498	0.5492	53,009	62,379	17	52,993	53,492	18	53,474	173	47	220	0.000300	0.000025	0.007828
257	7,791,115	198	2,461	0.5455	52,944	61,475	17	52,927	52,721	18	52,703	170	47	217	0.000300	0.000025	0.007828
258	7,677,481	195	2,426	0.5418	52,878	60,578	17	52,861	51,957	18	51,939	168	46	214	0.000300	0.000025	0.007828
259	7,564,804	192	2,390	0.5381	52,813	59,689	17	52,796	51,199	17	51,182	165	46	211	0.000300	0.000025	0.007828
260	7,453,076	189	2,355	0.5343	52,747	58,808	17	52,731	50,448	17	50,431	163	45	208	0.000300	0.000025	0.007828
261	7,342,291	186	2,320	0.5305	52,682	57,934	17	52,665	49,703	17	49,686	161	44	205	0.000300	0.000025	0.007828
262	7,232,441	184	2,285	0.5267	52,616	57,067	16	52,600	48,964	17	48,947	158	44	202	0.000300	0.000025	0.007828
263	7,123,518	181	2,251	0.5229	52,551	56,207	16	52,535	48,232	16	48,215	156	43	199	0.000300	0.000025	0.007828
264	7,015,515	178	2,216	0.5191	52,486	55,355	16	52,470	47,505	16	47,489	153	42	196	0.000300	0.000025	0.007828
265	6,908,425	175	2,183	0.5152	52,421	54,510	16	52,405	46,785	16	46,769	151	42	193	0.000300	0.000025	0.007828
266	6,802,240	173	2,149	0.5113	52,356	53,672	16	52,340	46,071	16	46,055	149	41	190	0.000300	0.000025	0.007828
267	6,696,953	170	2,116	0.5073	52,291	52,842	16	52,275	45,363	15	45,347	146	41	187	0.000300	0.000025	0.007828
268	6,592,558	167	2,083	0.5034	52,226	52,018	16	52,210	44,660	15	44,645	144	40	184	0.000300	0.000025	0.007828
269	6,489,047	165	2,050	0.4994	52,162	51,201	16	52,145	43,964	15	43,949	142	40	181	0.000300	0.000025	0.007828
270	6,386,412	162	2,018	0.4954	52,097	50,391	16	52,081	43,274	15	43,259	139	39	178	0.000300	0.000025	0.007828
271	6,284,648	160	1,986	0.4914	52,033	49,588	16	52,016	42,590	15	42,575	137	38	176	0.000300	0.000025	0.007828
272	6,183,747	157	1,954	0.4873	51,968	48,792	16	51,952	41,911	14	41,897	135	38	173	0.000300	0.000025	0.007828
273	6,083,702	155	1,922	0.4832	51,904	48,003	16	51,887	41,238	14	41,224	133	37	170	0.000300	0.000025	0.007828
274	5,984,507	152	1,891	0.4791	51,839	47,220	16	51,823	40,571	14	40,557	130	37	167	0.000300	0.000025	0.007828
275	5,886,154	150	1,860	0.4749	51,775	46,444	16	51,759	39,909	14	39,896	128	36	164	0.000300	0.000025	0.007828
276	5,788,638	147	1,829	0.4708	51,711	45,675	16	51,695	39,253	13	39,240	126	36	162	0.000300	0.000025	0.007828
277	5,691,951	145	1,798	0.4666	51,647	44,912	16	51,631	38,603	13	38,590	124	35	159	0.000300	0.000025	0.007828
278	5,596,086	142	1,768	0.4624	51,583	44,155	16	51,567	37,958	13	37,945	122	35	156	0.000300	0.000025	0.007828
279	5,501,038	140	1,738	0.4581	51,519	43,405	16	51,503	37,319	13	37,306	120	34	154	0.000300	0.000025	0.007828
280	5,406,800	138	1,708	0.4538	51,455	42,662	16	51,439	36,685	13	36,673	118	33	151	0.000300	0.000025	0.007828
281	5,313,365	135	1,679	0.4495	51,391	41,925	16	51,375	36,057	12	36,044	116	33	149	0.000300	0.000025	0.007828
282	5,220,727	133	1,649	0.4452	51,328	41,194	16	51,312	35,434	12	35,422	114	32	146	0.000300	0.000025	0.007828
283	5,128,879	131	1,620	0.4408	51,264	40,469	16	51,248	34,816	12	34,804	112	32	143	0.000300	0.000025	0.007828
284	5,037,816	128	1,592	0.4364	51,201	39,750	16	51,185	34,203	12	34,192	110	31	141	0.000300	0.000025	0.007828
285	4,947,531	126	1,563	0.4320	51,137	39,038	16	51,121	33,596	11	33,585	108	31	138	0.000300	0.000025	0.007828
286	4,858,018	124	1,535	0.4275	51,074	38,332	16	51,058	32,994	11	32,983	106	30	136	0.000300	0.000025	0.007828
287	4,769,271	121	1,507	0.4230	51,011	37,631	16	50,995	32,397	11	32,386	104	30	134	0.000300	0.000025	0.007828
288	4,681,283	119	1,479	0.4185	50,947	36,937	16	50,931	31,805	11	31,794	102	29	131	0.000300	0.000025	0.007828

Standard Default Methodology   Cash Flow B

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	150% PSA	Recover after	12 months (time to liquidation)
WAM	360	Default Rate	100% SDA	Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
289	4,594,049	117	1,451	0.4140	50,884	36,249	16	50,868	31,218	11	31,208	100	29	129	0.000300	0.000025	0.007828
290	4,507,562	115	1,424	0.4094	50,821	35,566	16	50,805	30,637	10	30,626	98	28	126	0.000300	0.000025	0.007828
291	4,421,817	113	1,397	0.4048	50,758	34,890	16	50,742	30,060	10	30,050	96	28	124	0.000300	0.000025	0.007828
292	4,336,808	111	1,370	0.4001	50,695	34,219	16	50,679	29,488	10	29,478	94	28	122	0.000300	0.000025	0.007828
293	4,252,529	108	1,344	0.3955	50,632	33,554	16	50,617	28,921	10	28,911	92	27	119	0.000300	0.000025	0.007828
294	4,168,974	106	1,317	0.3908	50,570	32,895	16	50,554	28,359	10	28,349	90	27	117	0.000300	0.000025	0.007828
295	4,086,138	104	1,291	0.3860	50,507	32,241	16	50,491	27,802	9	27,792	88	26	115	0.000300	0.000025	0.007828
296	4,004,014	102	1,265	0.3813	50,444	31,593	16	50,429	27,250	9	27,240	87	26	112	0.000300	0.000025	0.007828
297	3,922,597	100	1,239	0.3765	50,382	30,951	16	50,366	26,702	9	26,693	85	25	110	0.000300	0.000025	0.007828
298	3,841,881	98	1,214	0.3716	50,320	30,314	16	50,304	26,159	9	26,150	83	25	108	0.000300	0.000025	0.007828
299	3,761,861	96	1,189	0.3668	50,257	29,683	16	50,241	25,621	9	25,612	81	24	106	0.000300	0.000025	0.007828
300	3,682,531	94	1,163	0.3619	50,195	29,057	16	50,179	25,087	9	25,078	80	24	103	0.000300	0.000025	0.007828
301	3,603,886	92	1,139	0.3570	50,133	28,436	16	50,117	24,558	8	24,550	78	23	101	0.000300	0.000025	0.007828
302	3,525,920	90	1,114	0.3520	50,071	27,821	16	50,055	24,033	8	24,025	76	23	99	0.000300	0.000025	0.007828
303	3,448,628	88	1,090	0.3470	50,009	27,211	16	49,993	23,514	8	23,506	74	23	97	0.000300	0.000025	0.007828
304	3,372,004	86	1,065	0.3420	49,947	26,606	16	49,931	22,998	8	22,990	73	22	95	0.000300	0.000025	0.007828
305	3,296,044	84	1,041	0.3369	49,885	26,007	16	49,869	22,487	8	22,479	71	22	93	0.000300	0.000025	0.007828
306	3,220,741	82	1,018	0.3318	49,823	25,413	16	49,807	21,981	7	21,973	69	21	91	0.000300	0.000025	0.007828
307	3,146,091	81	994	0.3267	49,761	24,824	16	49,746	21,478	7	21,471	68	21	89	0.000300	0.000025	0.007828
308	3,072,089	79	971	0.3215	49,699	24,240	16	49,684	20,981	7	20,973	66	20	86	0.000300	0.000025	0.007828
309	2,998,729	77	947	0.3164	49,638	23,661	16	49,622	20,487	7	20,480	64	20	84	0.000300	0.000025	0.007828
310	2,926,005	75	924	0.3111	49,576	23,087	16	49,561	19,998	7	19,991	63	20	82	0.000300	0.000025	0.007828
311	2,853,914	73	902	0.3059	49,515	22,518	16	49,499	19,513	7	19,506	61	19	80	0.000300	0.000025	0.007828
312	2,782,450	71	879	0.3006	49,454	21,955	15	49,438	19,032	6	19,026	60	19	78	0.000300	0.000025	0.007828
313	2,711,608	70	857	0.2952	49,392	21,396	15	49,377	18,556	6	18,549	58	18	76	0.000300	0.000025	0.007828
314	2,641,383	68	835	0.2899	49,331	20,842	15	49,316	18,083	6	18,077	57	18	75	0.000300	0.000025	0.007828
315	2,571,770	66	813	0.2845	49,270	20,292	15	49,255	17,615	6	17,609	55	18	73	0.000300	0.000025	0.007828
316	2,502,765	64	791	0.2790	49,209	19,748	15	49,194	17,151	6	17,145	53	17	71	0.000300	0.000025	0.007828
317	2,434,362	63	769	0.2735	49,148	19,208	15	49,133	16,690	6	16,685	52	17	69	0.000300	0.000025	0.007828
318	2,366,556	61	748	0.2680	49,087	18,673	15	49,072	16,234	6	16,229	50	16	67	0.000300	0.000025	0.007828
319	2,299,343	59	726	0.2625	49,026	18,143	15	49,011	15,782	5	15,777	49	16	65	0.000300	0.000025	0.007828
320	2,232,719	57	705	0.2569	48,965	17,617	15	48,950	15,334	5	15,329	47	16	63	0.000300	0.000025	0.007828
321	2,166,677	56	685	0.2513	48,905	17,096	15	48,889	14,889	5	14,884	46	15	61	0.000300	0.000025	0.007828
322	2,101,215	54	664	0.2456	48,844	16,579	15	48,829	14,449	5	14,444	45	15	60	0.000300	0.000025	0.007828
323	2,036,327	53	643	0.2399	48,784	16,067	15	48,768	14,013	5	14,008	43	15	58	0.000300	0.000025	0.007828
324	1,972,008	51	623	0.2342	48,723	15,560	15	48,708	13,580	5	13,575	42	14	56	0.000300	0.000025	0.007828
325	1,908,254	49	603	0.2284	48,663	15,057	15	48,648	13,151	4	13,146	40	14	54	0.000300	0.000025	0.007828
326	1,845,061	48	583	0.2226	48,603	14,558	15	48,587	12,726	4	12,721	39	14	52	0.000300	0.000025	0.007828
327	1,782,423	46	563	0.2167	48,542	14,064	15	48,527	12,304	4	12,300	38	13	51	0.000300	0.000025	0.007828
328	1,720,338	45	544	0.2108	48,482	13,574	15	48,467	11,887	4	11,883	36	13	49	0.000300	0.000025	0.007828
329	1,658,799	43	524	0.2049	48,422	13,089	15	48,407	11,473	4	11,469	35	13	47	0.000300	0.000025	0.007828
330	1,597,803	41	505	0.1989	48,362	12,607	15	48,347	11,062	4	11,058	33	12	46	0.000300	0.000025	0.007828
331	1,537,346	40	486	0.1929	48,302	12,130	15	48,287	10,655	4	10,652	32	12	44	0.000300	0.000025	0.007828
332	1,477,423	38	467	0.1869	48,242	11,657	15	48,227	10,252	3	10,249	31	11	42	0.000300	0.000025	0.007828
333	1,418,030	37	448	0.1808	48,183	11,189	15	48,167	9,853	3	9,849	29	11	41	0.000300	0.000025	0.007828
334	1,359,162	35	429	0.1746	48,123	10,724	15	48,108	9,457	3	9,453	28	11	39	0.000300	0.000025	0.007828
335	1,300,816	34	411	0.1685	48,063	10,264	15	48,048	9,064	3	9,061	27	11	37	0.000300	0.000025	0.007828
336	1,242,987	33	393	0.1622	48,004	9,808	15	47,989	8,675	3	8,672	26	10	36	0.000300	0.000025	0.007828

Standard Default Methodology

Cash Flow B

Principal and Interest Are Advanced

WAC	8.00%	Prepay Rate	150% PSA	Recover after	12 months (time to liquidation)
WAM	360	Default Rate	100% SDA	Loss Severity	20.00%

Month	Performing Balance	New Defaults	In Foreclosure	Amort Factor	Expected Amortization	Voluntary Prepayments	Amort From Defaults	Actual Amort	Expected Interest	Interest Lost	Actual Interest	Principal Recovery	Principal Loss	Amortized Default Bal In Recovery Month	Annual Default Rate	Monthly Default Rate	Monthly Prepay Rate
337	1,185,672	31	375	0.1560	47,944	9,355	15	47,929	8,289	3	8,286	24	10	34	0.000300	0.000025	0.007828
338	1,128,865	30	357	0.1497	47,885	8,907	15	47,870	7,907	3	7,904	23	10	33	0.000300	0.000025	0.007828
339	1,072,563	28	339	0.1433	47,825	8,463	15	47,810	7,528	3	7,526	22	9	31	0.000300	0.000025	0.007828
340	1,016,763	27	321	0.1370	47,766	8,023	15	47,751	7,153	2	7,150	21	9	29	0.000300	0.000025	0.007828
341	961,459	25	304	0.1305	47,707	7,586	15	47,692	6,781	2	6,778	19	9	28	0.000300	0.000025	0.007828
342	906,648	24	286	0.1241	47,648	7,154	15	47,633	6,412	2	6,410	18	8	26	0.000300	0.000025	0.007828
343	852,326	23	269	0.1176	47,589	6,725	15	47,574	6,046	2	6,044	17	8	25	0.000300	0.000025	0.007828
344	798,490	21	252	0.1110	47,530	6,300	15	47,515	5,684	2	5,682	16	8	23	0.000300	0.000025	0.007828
345	745,134	20	235	0.1044	47,471	5,879	15	47,456	5,325	2	5,323	15	7	22	0.000300	0.000025	0.007828
346	692,256	19	219	0.0978	47,412	5,462	15	47,397	4,969	2	4,967	13	7	20	0.000300	0.000025	0.007828
347	639,852	17	202	0.0911	47,353	5,049	15	47,339	4,616	2	4,615	12	7	19	0.000300	0.000025	0.007828
348	587,917	16	186	0.0844	47,295	4,639	15	47,280	4,267	1	4,266	11	7	18	0.000300	0.000025	0.007828
349	536,461	0	156	0.0776	47,236	4,233	14	47,223	3,921	1	3,919	10	6	16	0.000000	0.000000	0.007828
350	485,466	0	129	0.0708	47,178	3,830	12	47,165	3,577	1	3,576	9	6	15	0.000000	0.000000	0.007828
351	434,926	0	104	0.0639	47,119	3,432	11	47,108	3,237	1	3,236	8	6	13	0.000000	0.000000	0.007828
352	384,839	0	82	0.0570	47,061	3,036	10	47,051	2,900	1	2,900	7	5	12	0.000000	0.000000	0.007828
353	335,201	0	63	0.0500	47,002	2,645	9	46,994	2,566	1	2,566	5	5	11	0.000000	0.000000	0.007828
354	286,007	0	46	0.0430	46,944	2,257	8	46,937	2,235	0	2,235	4	5	9	0.000000	0.000000	0.007828
355	237,256	0	32	0.0360	46,886	1,872	6	46,880	1,907	0	1,907	3	5	8	0.000000	0.000000	0.007828
356	188,942	0	21	0.0289	46,828	1,491	5	46,823	1,582	0	1,582	2	4	7	0.000000	0.000000	0.007828
357	141,064	0	12	0.0217	46,770	1,113	4	46,766	1,260	0	1,260	1	4	5	0.000000	0.000000	0.007828
358	93,616	0	5	0.0145	46,712	739	3	46,709	941	0	940	0	4	4	0.000000	0.000000	0.007828
359	46,596	0	1	0.0073	46,654	368	1	46,652	624	0	624	0	3	3	0.000000	0.000000	0.007828
360	0	0	0	0.0000	46,596	0	0	46,596	311	0	311	0	1	1	0.000000	0.000000	0.000000
Total		2,776,019			21,208,767	76,052,023	36,809	21,171,958				2,184,008	555,201	2,739,209			

D. Assumptions for Generic Pools

l. Mortgage Maturity

As noted in Section B.3., amortization of fixed-rate mortgage pools should be based on the most recent weighted-average maturity information (WAM or WARM) provided by the issuer or guarantor at the time the calculation is performed. The published WAM for a pool is the WAM as of a particular date. If the calculation is being performed as of a month other than the month to which the WAM applies, the WAM should be incremented or decremented by the number of months prior or subsequent to the WAM as-of month, respectively.

If the issuer or guarantor of a particular pass-through security has not released an updated WAM, the most recently released WAM may be used as described in the preceding paragraph, adjusted as described therein for the time elapsed since the as-of date of the WAM.

If the issuer or guarantor of a particular pass-through security has released neither updated nor original WAM information, then the remaining term to maturity should be used as a proxy.

Fannie Mae and Freddie Mac provide updated WAM information on a monthly basis. Fannie Mae's and Freddie Mac's monthly WAM updates are as of the current month. Freddie Mac's monthly WAM updates appear on its "quartile" tapes.

Ginnie Mae provides updated WAM information on a quarterly basis. The as-of date for the reported WAM depends on when the pool was issued. For pools issued before the third month prior to the start of the current quarter, the WAM is as of four months prior to the month of the quarterly release, as described in the table below:

Month of Data Release	For Pools Issued Prior To	WAM Information Is As Of
January	Previous October	September
April	Previous January	December
July	Previous April	March
October	Previous July	June

For pools issued during or subsequent to the third month prior to the start of the current quarter, the WAM is as of the pool's issue date.

To adjust the most recently updated WAM on a Ginnie Mae pool to the current month, the WAM should be decremented by the number of months subsequent to the as-of month for the WAM, as described below:

Current WAM = most recent WAM update – (number of months between the as-of month of the WAM and the current date)

For example, to adjust the WAM for the October 1993 tape for pools issued prior to July 1993 to be consistent with the October 1993 factor, subtract four months from the WAM. For pools issued in July, August and September 1993, subtract three months, two months and one month, respectively.

In some cases, the WAM that is released exceeds the time to final maturity of the pool. In these cases, the WAM should be set to MIN (updated WAM, time to maturity), where time to maturity is defined as the time between the as-of date and the pool maturity date.

For Fannie Mae pools with "same-month" loan concentrations greater than 50%, the original WAM may be reported as one month greater than the original loan term for a given pool type. For consistency with other mortgage calculations, the first month of amortization should be based on the reported WAM.

2. Mortgage Age

As noted in Section B.3., prepayment calculations should be based on the most recently updated weighted-average loan age information (WALA) provided by the issuer or guarantor at the time the calculation is performed. The published WALA for a pool is the WALA as of a particular date. If the calculation is being performed as of a month other than the month to which the WALA applies, the WALA should be incremented or decremented by the number of months subsequent or prior to the WALA as-of month, respectively.

Ginnie Mae releases updated WALA information on a quarterly basis, and as is the case with Ginnie Mae WAM updates, this information is reported with a lag. For pools issued before the third month prior to the month of the most recent WALA update, the WALA is as of four months prior to the month of the quarterly release, as shown in the table below:

Month of Data Release	For Pools Issued Prior To	WAM Information Is As Of
January	Previous October	September
April	Previous January	December
July	Previous April	March
October	Previous July	June

For pools issued during or subsequent to the third month prior to the start of the current quarter, the WALA is as of the pool's issue date.

To adjust the most recently updated WALA on a Ginnie Mae pool to the current month, the WALA should be incremented by the number of months subsequent to the as-of month for the WALA, as described below:

Current WALA = most recent WALA update + (number of months between the as-of month of the WALA and the current date)

For example, to adjust the WALA for the October 1993 tape for pools issued prior to July 1993 to be consistent with the October 1993 factor, add four months to the WALA. For pools issued in July, August and September 1993, add three months, two months and one month, respectively.

In some cases, a pool's WAM plus its WALA may add up to more than 360 months for a 30-year pool, or 180 months in the case of a 15-year pool. In those cases, a pool's age should be defined as 360 – WAM for a 30-year pool, or 180 – WAM for a 15-year pool.

In some cases, the reported WALA may be less than the age of the pool itself. For Ginnie Maes, the age should be set to MAX (updated WALA, pool age), where pool age is defined as the time between pool-issue date and as-of date. For Freddie Mac, the loans in a pool may have an age that is less than the pool age. For any month that the loan age is being calculated for a month prior to the as-of date of the reported WALA, the minimum loan age is zero.

For Fannie Mae MBS calculations prior to December 7, 2000, or when a WALA for any agency security is not reported, the age of the mortgages should be estimated as the average original maturity of the loans (assumed to be 180 or 360 months for 15- and 30-year pools; 120 or 240 months for 10- and 20-year pools), minus the original WAM of the loans (at the time of the pool formation), plus the time elapsed since pool formation. This method is referred to as a Calculated Loan Age, or "CAGE."

In the case of "same-month" loan concentrations greater than 50%, the original WAM may be reported as one month greater than the original loan term for a given pool type. For example, an original WAM of 361 would be reported for a "CL" pool that has an original loan term of 360 months. The CAGE should be set to 0 for the first month of these pools, instead of –1, which would be the result of the calculation. The second month of these pools would also have a CAGE of 0, while the third month would have a CAGE of 1.

Example of CAGE calculation:

Original Maturity:	360 months
Original WAM:	348 months
Issue Date:	7/1/91
Current Date:	7/1/92

CAGE is calculated as (360 – 348) + 12 = 24.

In some cases, this calculation will result in an age estimate that is too long. If the age as calculated above is greater than the original maturity minus the current WAM, then CAGE should be defined as the original maturity minus the current WAM.

Example:

Original Maturity:	360 months
Original WAM:	300 months
Current WAM:	348 months
Issue Date:	7/1/91
Current Date:	7/1/92

The age estimate (360 – 300) + 12 = 72 is greater than 360 – 348 = 12, so the average loan age should be set to 12.

If there is a dispersion of loan terms within a given pool, the CAGE calculation will give a loan age estimate that is too long.

If the original WAM of the loans is not available, the average loan age should be estimated as the average original maturity of the loans minus the remaining WAM; if the remaining WAM is not available, the average loan age should be estimated as the average original maturity of the loans minus time to final maturity.

As noted in Section B, the Standard Prepayment Model of The Bond Market Association and the ABS model both specify prepayment percentages based on the age of the underlying loans, not the age of the pool itself. The age of the pool should only be used if there is insufficient information to estimate loan age by any of the above-mentioned methods, subject to the exception noted below. All WAMs and ages should be rounded to the nearest full month for use in calculations.

The examples that follow illustrate the determination of WAM and age for selected Freddie Mac GOLD, Freddie Mac 75-day, Fannie Mae and Ginnie Mae pools.

Freddie Mac 75-Day or Gold Freddie Mac*

WAM reported on quartile tape received March 1993:	342 months
Age reported on quartile tape received March 1993:	seven months
Factor reported on factor tape received March 1993:	0.9708674
Factor reported on factor tape received February 1993:	0.9785748
Gross Coupon:	9.69%

WAM used with factor of 0.9708674 is 342 months (as reported on quartile tape).
Age used with factor of 0.9708674 is seven months (as reported on quartile tape).
WAM used with factor of 0.9785748 is 343 months (increment the most recently available WAM by one month).
Age used with factor of 0.9785748 is six months (decrement the most recently available age by one month).

The one-month PSA rate is 604. The value used for MONTH in the PSA formula is 7.

Fannie Mae

Issue month reported on factor tape received March 1992:	Sept. 1991
Original WAM reported on factor tape received March 1992:	350 months
WAM reported on factor tape received March 1992:	341 months
Factor reported on factor tape received March 1992:	0.96783524
Factor reported on factor tape received February 1992:	0.96891577
Gross Coupon:	10.03%

* Prior to March 1993, the WAMs reported on Freddie Mac's quartile tape were for the prior month, although the factor reported on the GOLD factor tape reflected scheduled principal advanced through the current settlement month. This made it necessary to decrement the GOLD quartile tape WAM by one month to calculate the prepayment rate. As of March 1993, this calculation will have already been incorporated in the Freddie Mac quartile tape, so no adjustment is necessary.

Age not reported by Fannie Mae.

Average original loan term not reported by Fannie Mae.

WAM used with factor of 0.96783524 is 341 months (as reported on factor tape).

Age used with factor of 0.96783524 is 16 months (assume from pool type that average original maturity of loans is 360 months, subtract original WAM of 350 months and add six months elapsed since pool issuance).

WAM used with factor of 0.96891577 is 342 months (increment the most recently available WAM by one month).

Age used with factor of 0.96891577 is 15 months (decrement the most recently available age by one month).

The one-month PSA rate is 22. The value of MONTH in the PSA formula is 16.

Ginnie Mae Pool

Pool Issue Month:	May 1993
WAM as reported on tape received October 1993:	359 months
Age reported on tape received October 1993:	one month
Factor reported on factor tape received October 1993:	0.960000
Factor reported on factor tape received September 1993:	0.970000
Gross Coupon:	7.50%

WAM used with factor of 0.960000 is 355 months (October reported WAM minus four months to adjust for reporting lag).

Age used with factor of 0.9600000 is five months (October reported WALA plus four months to adjust for reporting lag).

WAM used with factor of 0.9700000 is 356 months (increment WAM used with the October factor by one).

Age used with factor of 0.9700000 is four months (decrement WALA used with the October factor by one).

The one-month PSA rate is 1087. The value of MONTH in the PSA formula is 5.

3. **Mortgage Coupon**

If the issuing agency has not released the gross weighted-average coupon (WAC) of the mortgages underlying a fixed-rate, single-family pool, or if no particular WAC assumption is specified, then a fixed servicing spread above the pass-through rate must be assumed. For recently issued pools, the spread should be as follows:

Ginnie Mae I	+ 50 bp
Ginnie Mae II	+ 75 bp
Fannie Mae	+ 65 bp
Freddie Mac	+ 65 bp

E. Day Counts

1. Calendar Basis

The number of days from $M_1/D_1/Y_1$ to $M_2/D_2/Y_2$ on a 30/360 calendar basis is computed according to the following algebraic procedure:

If M_1 is 2 and D_1 is 28 in a nonleap year (or 29 in a leap year), then change D_1 to 30.

If D_1 is 31, change D_1 to 30.

If at this point D_1 is 30 and D_2 is 31, change D_2 to 30.

Then, the number of days is

$$N = max\{360 * (Y_2 - Y_1) + 30 * (M_2 - M_1) + (D_2 - D_1), 0\}$$

The computation draws no distinctions among business days, holidays and weekends.

These conventions shall apply for both accrued interest and yield calculations on all fixed-rate, mortgage-backed securities, unless explicitly stated otherwise.

Floating-rate and short-term instruments may be quoted on either a Money Market or a Bond-Equivalent Yield basis, following Section G.2. Money Market accounting makes use of the actual number of days from $M_1/D_1/Y_1$ to $M_2/D_2/Y_2$, including the former but not the latter, with the day count then divided by 360.

2. Delay Days

Delay refers to the length of time from the end of an interest-accrual period to the actual payment of the interest due. The "stated delay" of a mortgage-backed, pass-through security also includes the time during which interest accrues, and sometimes the accrual date itself. Ginnie Mae and Freddie Mac include the accrual date in their documentation of securities; Fannie Mae does not.

The yield, duration and average life of a pass-through should be calculated and expressed in terms of its actual cash-flow delay, defined as the difference between (1) the date a payment is assumed to be made to investors and (2) the date the payment is assumed to be received from homeowners, assuming 30-day months.

Market practice for CMOs and derivatives has been to use actual delay. The adoption of actual delay as the standard for pass-throughs, and the continuation of the use of actual delay for CMOs and derivatives, will bring greater uniformity to the mortgage market.

Delay days will be assumed to be "actual" unless labeled as "stated," and stated delay should always be accompanied by a disclosure of the actual delay. Stated delay may also be called, simply, "days to first payment."

If the following types of mortgage securities are issued on March 1, and if every full calendar month is counted as 30 days, then the delays are as follows:

Pass-Through Type	First Payment Assumed Due From Homeowners	First Payment Due to Investors	Actual Delay	Stated Delay *
Ginnie Mae I	April 1	April 15	14 days	45 days
Ginnie Mae II	April 1	April 20	19 days	50 days
Fannie Mae	April 1	April 25	24 days	55 days
Freddie Mac NONGOLD	April 1	May 15	44 days	75 days
Freddie Mac GOLD	April 1	April 15	14 days	45 days

No conclusions can be drawn concerning the delay of a principal-only CMO bond, and hence the ownership period corresponding to a particular payment, absent explicit disclosure by the issuer. This information is generally available from the issuer for new issues.

F. Settlement-Based Calculations

1. General Rules

For all mortgage pass-throughs and mortgage strips, prospective quotations of yield, duration and average life should be based on the actual settlement date of the transaction or, if not otherwise specified, The Bond Market Association standard settlement date for the quoted delivery month. However, if the quotations are made later than two business days before the standard settlement date, for delivery in the same month, then settlement should be assumed to occur either two business days later or on the last business day of the month, whichever is sooner. In all cases, calculations involving yields or durations should incorporate the correct amount of accrued interest.

CMOs and Asset-Backed Securities (ABSs) should continue to follow corporate settlement rules.

Comparisons between current and historical market quotations should be made on a consistent basis (first-of-month vs. first-of-month, for example, or settlement-date vs. settlement-date). The basis of comparison should be disclosed if it would otherwise be a source of ambiguity or confusion.

a.   Settlement Amount

The amount payable by the buyer to the seller on the settlement date is known as the settlement amount, net proceeds or total cost, and is the sum of the principal amount and accrued interest:

$$COST = \left[PRINCIPAL\ AMOUNT\right] + \left[ACCRUED\ INTEREST\right].$$

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* These stated delays would be 44, 49, 54 and 74 days, respectively, under the alternate convention in which the accrual date itself is not counted.

For most mortgage-related securities, the principal amount and accrued interest are computed as described in parts b and c below. Special procedures for CMO bonds whose settlement factors have not been released by the time of settlement, and for Freddie Mac Multiclass PCs (REMICs), are the subjects of Sections F.2. and F.3. below.

b.   Principal Amount

For most mortgage-related securities, the principal amount (or "current face amount," or "current balance") is equal to the product of the original face amount and the current factor:

PRINCIPAL AMOUNT = FACE * (PRICE/100) * F,

where   FACE   =   original face amount of bond
        PRICE =   price, as a percentage of current face amount
        F   =   current factor (factor at start of the payment period containing the settlement date).

c.   Accrued Interest

For most mortgage-related securities, interest accrues according to the following standard calculation:

ACCRUED INTEREST = FACE * F * (COUPON/100) * (N/360),

where   COUPON =   annual coupon rate of the security, in percent
        N   =   number of days from the first day of the accrual period (the "as-of" date for the factor F) to the settlement date itself. (The day count is computed according to the 30/360 calendar, as specified in Section E.1.)

2.   CMO Bonds with Unknown Settlement Factors

a.   General Rule

If settlement occurs in a payment period whose factor is not yet available at the time of settlement, settlement may proceed using the most recently published factor (F_0) in place of the current factor (F) in the settlement formulas of Section F.1., to be corrected once the current factor is released. This general rule does not apply to accrual bonds in an accretion period (any payment period immediately following a payment date on which no cash payments were made).

b.   CMO Accrual Bonds

For CMO accrual bonds that are traded during their accretion period and settled in a payment period whose current factor is not available at the time of settlement, settlement may proceed using an estimated current factor (F_{est}) in place of the current factor (F) in the settlement formulas of Section F.1., to be corrected once the current factor is released. The estimated current factor is computed as follows:

$$F_{est} = F_0 * \left[1 + (COUPON/100) * (N_0/360) \right],$$

where F_0 is the most recently published factor, COUPON is the annual coupon rate of the security in percent and N_0 is the number of days from the "as-of" date for F_0 to the "as-of" date for the current settlement factor F, measured according to the 30/360 calendar.

3. **Freddie Mac Multiclass PCs (REMICs)**

Unlike most other mortgage-related securities, Freddie Mac REMICs have record dates that are in the middle of the month, while the tranche factors are updated at the beginning of the month. This practice requires special considerations for the computation of settlement balances and accrued interest. (Parties to transactions may agree on terms other than those set out here.)

a.   Fixed-Rate REMIC Classes

Principal and accrued interest are determined using the factor as of the last Record Date prior to the Settlement Date. Accrued interest will be paid to the seller for the time from the day following that Record Date to the Settlement Date.

Example:

Factor Dates - 1/1, 2/1, 3/1, etc.
Record Dates - 1/14, 2/14, 3/14, etc.
Settlement Date - 2/15 to 3/14
Accrued Interest calculation - days from 2/15 to Settlement Date (no accrued interest if
                                            Settlement Date is 2/15)

A holder of record on 3/14 (the buyer) receives principal and interest from Freddie Mac on 4/15. The dollar amounts are determined by the following formulas, where F(m/d) denotes the factor as of a date, FACE denotes the original face amount and COUPON denotes the annual coupon rate in percent:

$$Principal = \left[F(2/1) - F(3/1) \right] * FACE,$$
$$Interest = F(2/1) * FACE * COUPON/1200.$$

b.   Variable-Rate REMIC Classes

Principal is determined using the factor as of the last Record Date prior to the Settlement Date. Accrued interest is determined using the factor as of the second Record Date prior to the Settlement Date, however, because the accrual period follows the Record Date for variable-rate classes whereas it precedes the Record Date for fixed-rate classes. Therefore, at settlement, one should *deduct from the cost* the accrued interest for the time from the Settlement Date to the day following the first Record Date on or after the Settlement Date, at the coupon rate in effect as of the Settlement Date.

Example:

Factor Dates - 1/1, 2/1, 3/1, etc.
Record Dates - 1/14, 2/14, 3/14, etc.
Settlement Date - 2/15 to 3/14
Accrued Interest calculation - days from Settlement Date to 3/15
                                        (always at least one day of accrued interest)

A holder of record on 2/14 (the seller) receives principal and interest from Freddie Mac on 3/15. The dollar amounts are determined by the following formulas, where F(m/d) denotes the factor as of a date, FACE denotes the original face amount, and COUPON(m/d) denotes the annual coupon rate in percent as of a date:

$$\text{Principal} = \left[F(1/1) - F(2/1) \right] * \text{FACE},$$
$$\text{Interest} \ = F(1/1) * \text{FACE} * \text{COUPON}\,(2/15)/1200.$$

G. Yield and Yield-Related Measures
1. General Rules

All mortgage-related yields, durations, convexities and holding-period returns should be calculated uniformly on a semiannual-compounding basis, regardless of the frequency of the actual cash flows used in computing these measures.* The correct computations are specified in detail below.

a. *Bond-Equivalent Yield* (or *Semiannual Yield* or simply *Yield*) is the number Y, which satisfies the equation

$$P = \frac{CF_1}{\left(1 + Y/200\right)^{2T_1}} + \frac{CF_2}{\left(1 + Y/200\right)^{2T_2}} + \cdots ,$$

where P is the dollar price of the security (including the correct accrued interest), CF_K is the cash flow received by the investor at time T_K after settlement (measured in years, on a 30/360 calendar basis, including actual delay days), and the sum is over all future cash flows K=1,2,... . Unlike the standard definitions of yield for government, municipal and corporate bonds, the standard for mortgage-related securities is free of exceptional cases for single- or odd-coupon periods.

b. *Mortgage Yield* or *Monthly Yield:* If clearly labeled, yield may also be quoted on a monthly compounding basis:

$$\text{Mortgage Yield} = 1200 \left[\left(1 + Y/200\right)^{1/6} - 1 \right].$$

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* In certain instances, semiannual computations are undefined for overnight investments. These are more appropriately analyzed using money-market formula standards.

However, Mortgage Yield should not be used in the duration or convexity formulas below, where Y refers strictly to Semiannual Yield.

c. *Average Life* is the dollar-weighted average time to receive future payments of principal (PR_K), where again the T_K's measure the time elapsed from the settlement date to the actual receipt of the cash flows:

$$\text{Average Life} = \frac{T_1\,PR_1 + T_2\,PR_2 + ...}{PR_1 + \quad PR_2 + ...} \, .$$

The precise definition of principal payments for accrual instruments (CMO Z-bonds, GPMs and certain ARMs) is the subject of Section H.1.

d. *Macaulay Duration,* or simply *Duration,* is the PV-weighted average time to receive future payments:

$$\text{Duration} = \frac{1}{P}\left[\frac{T_1\,CF_1}{\left(1 + Y/200\right)^{2T_1}} + \frac{T_2\,CF_2}{\left(1 + Y/200\right)^{2T_2}} + ...\right].$$

e. *Modified Duration* represents the ratio of a small percentage increase in price to the accompanying decrease in Semiannual Yield, assuming cash flows are held fixed. It is calculated by dividing the Macaulay Duration by the appropriate semiannual compounding factor:

$$\text{Modified Duration} = \frac{\text{Duration}}{1 + Y/200} \, .$$

Modified Duration should not be called simply Duration, to avoid confusion between the two concepts.

f. *Convexity* is a measure of the decrease in price-sensitivity of a security per unit increase in yield. More precisely, convexity equals the price of the security, differentiated twice with respect to Semiannual Yield, divided by the price. Assuming fixed cash flows (no prepayment variability), then

$$\text{Cash-Flow Convexity} = \frac{1}{(1 + Y/200)^2\,P}\left[\frac{T_1\left(T_1 + 1/2\right)CF_1}{\left(1 + Y/200\right)^{2T_1}} + \frac{T_2\left(T_2 + 1/2\right)CF_2}{\left(1 + Y/200\right)^{2T_2}} + ...\right].$$

Convexity may be divided by 100 for purposes of expression.

g. For securities with fixed cash flows, Modified Duration and Cash-Flow Convexity can be used to approximate the price/yield relationship according to the formula

$$P \approx P_0\left[1 - \left(\text{Mod. Dur.}\right)\frac{Y - Y_0}{100} + \frac{1}{2}\left(\text{Cash-Flow Conv.}\right)\left(\frac{Y - Y_0}{100}\right)^2\right],$$

where P_0 and Y_0 are the price and yield today, respectively, and P and Y are the corresponding new price and yield.

When duration and convexity values are computed which do account for interest-sensitive cash flows in the above equation, reasonable care should be taken to distinguish these measures from their static cash-flow counterparts. (An adjective such as *Option-Adjusted, Empirical, Effective* or *Implied* would be appropriate.) For example, the Cash-Flow Convexity of a mortgage pass-through is always positive, while the Effective Convexity is frequently negative. Effective Duration should never be called Duration or Modified Duration.

h. An investment of P_0 today, resulting in a market value of P_T after T years on the 30/360 calendar, constitutes a *Bond-Equivalent Total Rate of Return* equal to

$$200\left[\left(P_T/P_0\right)^{1/(2T)} - 1 \right].$$

On a nonannualized basis, the *Total Percentage Return* (or *Actual* or *Simple Total Return*) is

$$100\left[\left(P_T/P_0\right) - 1 \right].$$

All cash flows to which the holder would be entitled, as the owner of record during the holding period, are included. Cash flows not coinciding with the first or last day of the holding period should be compounded (or discounted, as appropriate) according to a specified reinvestment rate assumption. In particular, cash flows received on a delayed basis after the end of the holding period are discounted back to the end of the holding period using the assumed reinvestment rate.

The Bond-Equivalent Total Rate of Return is equal to the Bond-Equivalent Yield if the investment is held to final maturity and the intermediate cash flows are reinvested at a rate equal to the Bond-Equivalent Yield.

The phrase *Total Return* may be used to designate either the Rate of Return or the Percentage Return, but the choice of method should be made clear. Quotations that provide annualized rates other than on a bond-equivalent basis should be avoided.

Example: For a Ginnie Mae I 9.0% pass-through with 14-day actual delay, settled on the issue date, the correct price/yield equation is

$$P = \frac{CF_1}{\left(1+Y/200\right)^{2(44/360)}} + \frac{CF_2}{\left(1+Y/200\right)^{2(74/360)}} + \cdots .$$

If the security is priced at par with a term of 360 months and an assumed prepayment speed of 150% PSA, then

$$
\begin{aligned}
P &= 100.0000, \\
CF_1 &= 0.8242, \\
CF_2 &= 0.8491, \\
CF_3 &= 0.8738, \\
CF_K &= ..., \\
CF_{360} &= 0.0562, \\
\text{Yield} &= 9.10675\%, \\
\text{Mortgage Yield} &= 8.93863\%, \\
\text{Average Life} &= 9.77844 \text{ years}, \\
\text{Duration} &= 5.73147 \text{ years}, \\
\text{Modified Duration} &= 5.48186 \text{ years}, \\
\text{Cash-Flow Convexity} &= 54.4326 \text{ years}^2 \quad (\text{or } 0.544326).
\end{aligned}
$$

In addition, if a variable prepayment-rate model were estimating prices of 99.453 and 100.541 for yield shifts of 10 basis points up and down, respectively, then Effective Duration and Effective Convexity would be the numbers satisfying the equations

$$
99.453 \approx 100.000 \left[1 - (\text{Eff. Dur.}) \frac{0.10}{100} + \frac{1}{2} (\text{Eff. Conv.}) \left(\frac{0.10}{100} \right)^2 \right],
$$

$$
100.541 \approx 100.000 \left[1 - (\text{Eff. Dur.}) \frac{-0.10}{100} + \frac{1}{2} (\text{Eff. Conv.}) \left(\frac{-0.10}{100} \right)^2 \right].
$$

The simultaneous solution is

$$
\begin{aligned}
\text{Effective Duration} &\approx 5.44 \text{ years}, \\
\text{Effective Convexity} &\approx -60.0 \text{ years}^2 \ (\text{or} -0.600).
\end{aligned}
$$

If the security is sold three months later at an identical yield, with an assumed bond-equivalent reinvestment rate of $R = 8\%$ for the three pass-through cash flows, then

$$
\begin{aligned}
P_T &= (\text{Sale Price})(\text{Pool Factor}) + CF_1 (1 + R/200)^{2(T-T_1)} + CF_2 (1 + R/200)^{2(T-T_2)} \\
&\quad + CF_3 (1 + R/200)^{2(T-T_3)} \\
&= (99.9934)(0.99701075) + 0.8242(1.04)^{2(90-44)/360} + 0.8491(1.04)^{2(90-74)/360} \\
&\quad + 0.8738(1.04)^{2(90-104)/360} \\
&= 102.2502,
\end{aligned}
$$

$$
\text{Total Rate of Return} = 9.102\%,
$$

$$
\text{Total Percentage Return} = 2.250\%.
$$

Example: If the same Ginnie Mae I 9.0% pass-through (360-month term, 150% PSA) is purchased at par, but for settlement seven days after the issue date, then the 360 cash flows are the same as in the previous example, but now (with accrued interest)

P   =   100.1750,

Yield   =   9.10644%.

2. Calculations for Floating-Rate MBS

Definitions follow for two of the most common measures of the value of a floating-rate security: *Yield-to-Maturity Spread* (YTM Spread) and *Discounted Margin* (DM). The consistency of calendar assumptions is particularly important for these calculations.

a.   The YTM Spread is the difference between (1) the yield of a floating-rate security and (2) the yield of the index rate itself, assuming in both cases that the index rate takes on a certain fixed value for the indefinite future. (Unless otherwise specified, this should be the current level of the index rate.)

   (1)   Cash flows for the floater are computed strictly according to the specifics of the security (calendar basis, accrued interest, payment delay, reset frequency, reset margin, caps, floors, prepayment rates, etc.). The cash-flow yield of the floater is computed on a 30/360 Bond-Equivalent basis (as specified in Section G.1.) or else on an ACTUAL/360 Money-Market basis (following the same yield formula but defining the exponents T_K according to ACTUAL/360 calendar accounting). Ordinarily, the T_K will be computed on the same calendar basis as the cash flows. However, it is sometimes necessary to compare two securities whose cash flows are determined by different calendar bases. The T_K must be computed on the same calendar basis for both. Quotations should always specify which calendar basis is being used.

   (2)   The cash-flow yield of the benchmark index is simply the index itself, converted if necessary to a 30/360 Bond-Equivalent basis or an ACTUAL/360 Money-Market basis, depending on the basis used to compute the cash-flow yield of the floater in (1) above. To convert ACTUAL/360 yields to 30/360 yields (or vice versa), the index rate should be multiplied (or divided, as appropriate) by a gross-up factor of 365/360. No gross-up conversion is necessary between ACTUAL/ACTUAL and 30/360 yields. After converting the index rate to the desired calendar basis (30/360 or ACTUAL/360), index rates expressed on a monthly, quarterly or annual compounding basis should be converted to semiannual compounding.

   Calendar conventions for the most common reset indexes are as follows:

Index	Term	Calendar	Payment/Compounding
LIBOR	under 1 year	ACT/360	monthly, quarterly, semiannual
LIBOR	1 year & over	ACT/ACT	annual
T-Bills		ACT/360	quarterly, semiannual, annual
TSY/CMT	1 year & over	30/360	semiannual
11th District COFI		ACT/ACT	monthly

b.   The DM represents the increment over the index rate that causes the settlement price of a floating-rate security to equal the discounted present value of its cash flows, with yield-compounding frequency matching the security payment schedule. As in the YTM Spread calculation, the DM uses assumed future values for the index rate (which must be specified if not equal to the current level). The DM is more general than the YTM Spread, however, in that the DM allows for varying interest-rate scenarios and the YTM Spread does not. At the same time, the DM is less general than the YTM Spread in that DMs cannot be compared for securities with different payment frequencies, while YTM Spreads can. The full equation defining DM is

$$P = \frac{CF_1}{\left[1 + \frac{I_1 + DM}{100} * (T_1 - T_0)\right]} + \frac{CF_2}{\left[1 + \frac{I_1 + DM}{100} * (T_1 - T_0)\right] * \left[1 + \frac{I_2 + DM}{100} * (T_2 - T_1)\right]}$$

$$+ \frac{CF_3}{\left[1 + \frac{I_1 + DM}{100} * (T_1 - T_0)\right] * \left[1 + \frac{I_2 + DM}{100} * (T_2 - T_1)\right] * \left[1 + \frac{I_3 + DM}{100} * (T_3 - T_2)\right]}$$

$$+ \dots ,$$

where P is the dollar price of the security (including the correct accrued interest), CF_K is the cash flow received by the investor at time T_K (measured in years, and where T_0 is settlement day), I_K is the assumed index rate from time T_K -1 to time T_K (with gross-up calendar conversion as described in (2) above, as appropriate, but without semiannual compounding conversion), and the sum is over all future cash flows K = 1,2,... . Ordinarily, the T_K will be computed on the same calendar basis as the cash flows. However, it is sometimes necessary to compare two securities whose payment frequencies are the same but whose cash flows are determined by different calendar bases. The T_K must be computed on the same calendar basis for both. Quotations should always specify which calendar basis is being used.

Example: Each March 1 and September 1, a hypothetical FRCMO pays the interest accrued during the six-month period ending one month prior to the payment date, computed on an ACTUAL/ACTUAL calendar basis, using a rate that resets monthly to 50 basis points above the three-month LIBOR level on the second business day prior to the first of that month. Assume that the security trades at 99 for settlement on 3/17/89, with three-month LIBOR at 10-3/16%. Assume further that LIBOR was 9-3/8% on 1/30/89 and 10-15/16% on 2/27/89, and that half the principal is repaid on 9/1/89 and half on 3/1/90.

All calculations will use the same cash flows:

$$P = 99 + 100 \left[(28/365) \, 0.098750 + (16/365) \, 0.114375 \right]$$
$$= 100.2589,$$

$$CF_1 = 50 + 100 \left[(28/365) \, 0.098750 + (31/365) \, 0.114375 + (122/365) \, 0.106875 \right]$$
$$= 55.3012,$$

$$CF_2 = 50 + 50 \left[(184/365) \, 0.106875 \right]$$
$$= 52.6938.$$

Bond-Equivalent basis (30/360)

Yield of FRCMO:

$$P = \frac{CF_1}{\left(1 + Y/200\right)^{2(164/360)}} + \frac{CF_2}{\left(1 + Y/200\right)^{2(344/360)}}$$

Result: 10.96675%

Yield of Index:

$$Y_{Index} = 200 \left\{ \left[1 + (365/360) 10.1875/400 \right]^2 - 1 \right\}$$

Result: 10.46235%

YTM Spread:

$$Y - Y_{Index} = 10.96675\% - 10.46235\%$$

Result: 50.44 basis points

Discounted Margin:

$$P = \frac{CF_1}{\left[1 + \frac{I_1 + DM}{100} * \frac{164}{360} \right]} + \frac{CF_2}{\left[1 + \frac{I_1 + DM}{100} * \frac{164}{360} \right] * \left[1 + \frac{I_2 + DM}{100} * \frac{180}{360} \right]}$$

$$I_1 = I_2 = (365/360) 10.1875$$

Result: 62.05 basis points

Money-Market basis (ACTUAL/360)

Yield of FRCMO:

$$P = \frac{CF_1}{\left(1 + Y/200\right)^{2(168/360)}} + \frac{CF_2}{\left(1 + Y/200\right)^{2(349/360)}}$$

Result: 10.76838%

Yield of Index:

$$Y_{Index} = 200 \left[\left(1 + 10.1875/400 \right)^2 - 1 \right]$$

Result: 10.31723%

YTM Spread:

$$Y - Y_{Index} = 10.76838\% - 10.31723\%$$

Result: 45.11 basis points

Discounted Margin:

$$P = \frac{CF_1}{\left[1 + \frac{I_1 + DM}{100} * \frac{168}{360} \right]} + \frac{CF_2}{\left[1 + \frac{I_1 + DM}{100} * \frac{168}{360} \right] * \left[1 + \frac{I_2 + DM}{100} * \frac{181}{360} \right]}$$

$$I_1 = I_2 = 10.1875$$

Result: 56.89 basis points

3. Putable Project Loans

Certain Federal Housing Administration (FHA) project loans contain provisions allowing the holders of the loans to put them back to the Department of Housing and Urban Development (HUD) in exchange for a ten-year current-coupon FHA debenture. The current coupon is defined as an average ten-year Treasury rate. The face amount of the debenture is the remaining balance of the loan on the put date. The put feature can be exercised for one year beginning in the month following 20 years after the final endorsement date on the loan.

The following assumptions apply to yield and average-life calculations for putable project loans:

a.   Although the debentures carry a ten-year current coupon and are backed by the full faith and credit of the U.S. Government, it is uncertain what the market value of the debentures will be immediately after they are issued. The standard assumption has been that the debentures trade roughly 60 basis points above the ten-year Treasury, equating to a dollar price of 96. In lieu of a specific yield assumption, the put price of the remaining project loan balance should therefore be assumed to be 96, unless explicitly stated otherwise.

b.   The final endorsement date of a project loan may be before or after the origination of the loan. Therefore, a standard put date cannot be assumed (e.g., 20 years after loan origination). The put date used for calculations should be stated explicitly.

c.   Once a put is declared to FHA, the agency is responsible for paying accrued interest on the debentures starting from the put date itself. Therefore, the debentures should be val-

ued as if received on the put date, regardless of scheduled loan payment dates or payment delay.

Example: Suppose an FHA project loan pass-through has the following characteristics:

Gross Coupon	=	7.50%
Net Coupon	=	7.43%
Actual Delay	=	24 days
Original Term	=	40 years
Origination Date	=	2/1/79
Put Date	=	6/1/99

Put calculations should then be based on the investor's receiving the 6/99 principal balance (valued at 96%, paid on the put date) plus 100% of the final pass-through cash flow (the principal and interest for 5/99, paid on 6/25/99 according to the scheduled delay). These represent standard valuation assumptions, not actual cash flows. If the security trades at 85 for settlement on 2/1/89, then

Yield to Put	=	9.77078%,
Average Life to Put	=	9.72452 years.

H. Accrual Instruments

1. Average Life of Accrual Instruments

For CMO Z-bonds, Graduated-Payment Mortgages (GPMs) or Adjustable-Rate Mortgages (ARMs) with capped payments, principal balances can increase over the life of the bonds. Interest accrued (but not paid out) for a payment period is treated as a negative principal payment, occurring on the payment date for that period. This is consistent with the accepted definition of the net cash flow on a payment date as the sum of

(1) simple interest due on the principal balance for the full payment period

and

(2) a return of principal (positive or negative).

No portion of the cash flow is treated as interest-on-interest. Instead, there is a formal conversion of accrued interest to loan principal on payment dates (negative amortization).

It follows that at the end of every payment period, one should first compute the value of "(1)" and then subtract it from the net cash flow on the payment date to obtain the correct value of "(2)." The outstanding principal balance changes by amount "(2)," and only on payment dates, not daily.

Long-standing market practices have resulted in different methods for calculating average life for pass-through securities (notably GPMs and payment-capped ARMs) and for CMOs. Because of widespread acceptance of these methods within their respective market segments, the Standard Formulas for average life are product-specific.

For GPMs and ARMs, all periodic principal payments, positive or negative, should be included in both the numerator and denominator of the average-life calculation (see Section G.1.c.), so that the denominator equals the principal balance in effect for the period of the settlement date (exclusive of accrued interest). For Z-bonds, the numerator and denominator should include only the positive principal payments (amount "(2)" if positive, 0 otherwise), and the denominator will generally be larger than the principal balance at settlement.

Example: To illustrate these points, consider the following hypothetical accrual instrument:

Time	Net Cash Flow	10% Periodic Interest	Principal Repayment (= Cash Flow – Interest)	Principal Balance
0	−100			100
1	0	10	−10	110
2	11	11	0	110
3	121	11	110	0

If there is no cash-flow delay, then the average life under the GPM/ARM convention is

$$\frac{1(-10) + 2(0) + 3(110)}{-10 + 0 + 110} = \frac{320}{100} = 3.20 \text{ periods}.$$

Under the Z-bond convention, the average life is

$$\frac{1(0) + 2(0) + 3(110)}{0 + 0 + 10} = \frac{330}{110} = 3.00 \text{ periods}.$$

The GPM/ARM definition has the advantage of preserving the intended relationship between average life and interest-rate risk. In particular, the average life of a fixed-income security should roughly equal the term to maturity for which a bullet with the same coupon would have the same price-sensitivity per purchase dollar. This is the purpose for which average life is used in the absence of duration measures. In general, negative principal payments lead to longer average lives, in some cases longer than the final maturity.

It should be noted that the Z-bond definition of average life can substantially understate the true interest-rate sensitivity of a security, and that the combined average life of the bond classes of a CMO containing Z-bonds can be inconsistent with the average life of the underlying collateral. Analysts and traders should be aware of these facts when average-life comparisons are being made.

2. Accrual Calculations for CMO Z-Bonds

The special calculation method for the settlement of accrual bonds has been discontinued for trades made on or after July 15, 1991, with settlement on or after October 1, 1991. Henceforth, these trades will follow the standards set forth in Sections F.1. and F.2.