

## Estimating Prepayment Slowdown - A Recap of 1987

- Mortgage interest rates (30-yr. fixed rate) have risen over 160 bps since their lows in January, from 6.75% to 8.35% in April. With the rise in rates, prepayments have begun slowing down. In order to anticipate the potential magnitude of the cumulative slowdown, it is useful to analyze the prepayment experience of 1987.
- Mortgage rates jumped 105 bps between March and April 1987, rising 195 bps by October 1987, and ended the year up 156 bps. Prepayment rates slowed dramatically in response to this rise in rates.
- For the "cuspy" coupons (10s through 11s), over half the slowdown occurred within 3-months of the rate rise, with most of it occurring within 6 months. This can be seen in the graphs and tables.
- Premium coupons took longer to slowdown than cuspy coupons, and ended up at higher speeds than the cuspy coupons, even though, when refinancible, the cuspy coupons experienced higher prepaids than the premiums.
- Even coupons that were out of the money experienced slowdowns, suggesting that higher rates hampered housing turnover because of the affordability of the new mortgage.
- Given the greater efficiency of today's mortgage market, we would expect greater slowdowns in prepayments than those experienced in 1987, and expect the slowdowns to occur sooner. This expectation is offset by the high seasonal turnover in the housing markets expected in the near term. However, the slowdowns experienced in 1987 were dramatic, and should provide information about MBS extension risk.
- The table below shows the potential slowdown in speeds for FNMA 30-year prepayments, estimated by applying the 1987 9-month prepayment slowdown percentages to the comparable coupons (indexed from the current coupon) today. We use the peak December 1993 prepayments as our base line for estimating the slowdown in prepayments.

**Table 1: Potential Slowdown in Prepayments using 1987 experience. ^**

1987 Experience	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
1987 PSA Slowdown	-30%	-47%	-52%	-80%	-84%	-72%	-60%
1987 CPR Slowdown	-28%	-45%	-32%	-81%	-83%	-72%	-60%

1994 Potential PSA	5.5%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%
Potential PSA	46	49	233	274	167	228	271
Potential CPR	0.6	0.3	5.2	10.5	10.7	13.7	16.3

^ See Tables 2 through 4 for more details.

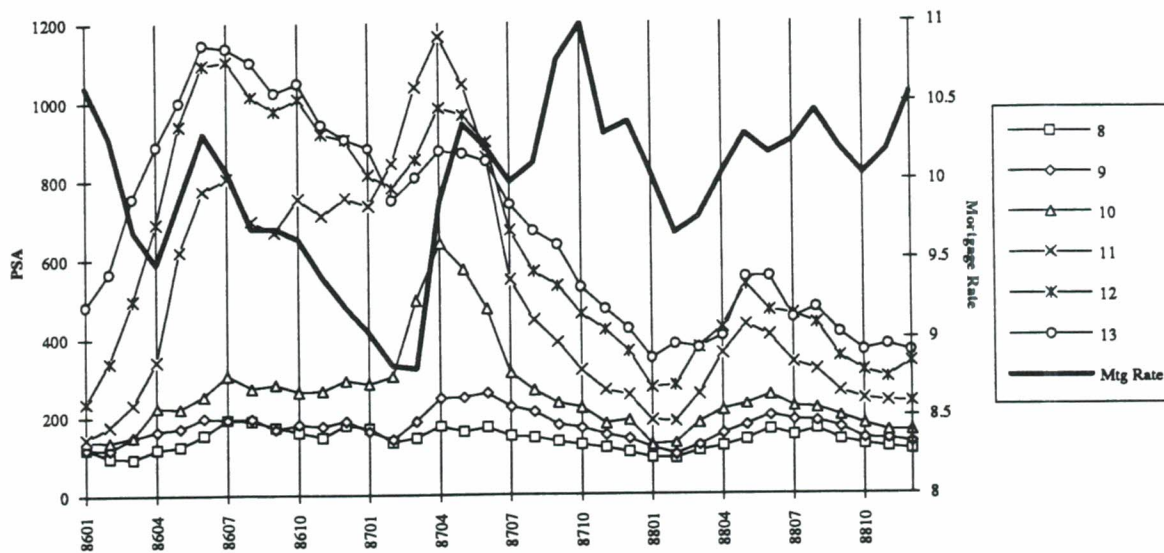
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**ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST.**

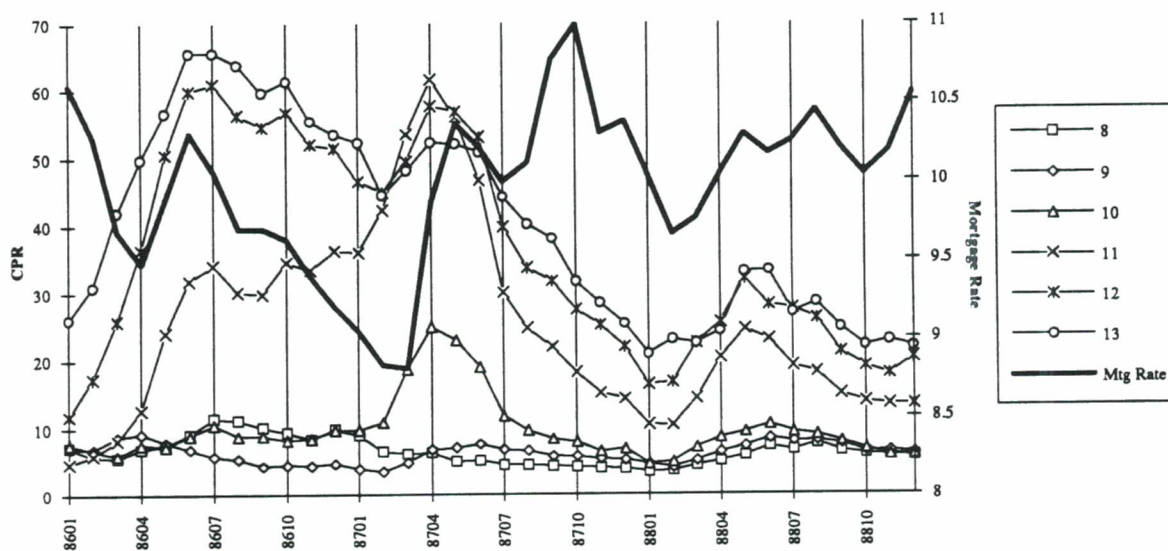
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# **FNMA 30-year Prepayments (PSA and CPRs) versus Mortgage Rates 1986-1988**

**FNMA 30-yr Prepayments (8601 - 8812)**



**FNMA 30-yr Prepayments (8601 - 8812)**





**Table 2: FNMA 30-yr. MBSs - PSAs in 1987**

	Mtg Rate (t-1)	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
April 1987	8.81	149	175	247	639	1165	985	875
January 1988	10.37	104	93	118	126	188	273	348
1-Mo. Change	1.05	-12%	-8%	1%	-10%	-10%	-2%	-1%
3-Mo. Change	1.40	-12%	-15%	-9%	-51%	-53%	-32%	-16%
6-Mo. Change	1.95	-13%	-27%	-31%	-65%	-73%	-53%	-40%
9-Mo. Change	1.56	-30%	-47%	-52%	-80%	-84%	-72%	-60%

**Table 3: FNMA 30-yr. MBSs - CPRs in 1987**

	Mtg Rate (t-1)	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
April 1987	8.81	7.6	6.4	6.8	24.9	61.5	57.6	52.3
January 1988	10.37	5.5	3.5	4.6	4.7	10.5	16.4	20.9
1-Mo. Change	1.05	2%	-21%	4%	-8%	-9%	-1%	-1%
3-Mo. Change	1.40	-14%	-30%	0%	-53%	-51%	-31%	-15%
6-Mo. Change	1.95	-13%	-34%	-15%	-68%	-70%	-52%	-39%
9-Mo. Change	1.56	-28%	-45%	-32%	-81%	-83%	-72%	-60%

**Table 4: FNMA 30-yr. MBSs - 1994 Slowdown Projections, using 1987 experience**

	5.5%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%
Dec. 1993 PSA +	66	92	486	1369	1046	815	678
Dec. 1993 CPR +	0.8	0.6	7.7	55.0	63.2	48.9	40.7
Mar. 1994 Actual PSA	21	115	276	801	915	726	646
Mar. 1994 Actual CPR	0.3	1.2	5.3	35.4	49.1	43.6	38.7
Projected PSA $\Delta$ * %	-30%	-47%	-52%	-80%	-84%	-72%	-60%
Projected CPR $\Delta$ * %	-28%	-45%	-32%	-81%	-83%	-72%	-60%
Projected PSA * %	46	49	233	274	167	228	271
Projected CPR * %	0.6	0.3	5.2	10.5	10.7	13.7	16.3

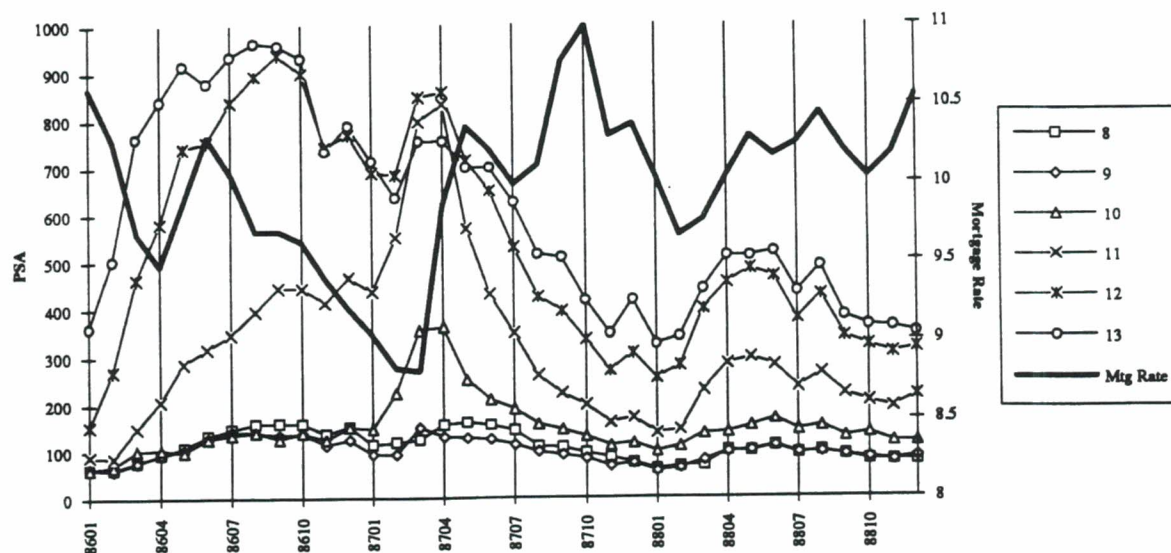
+ We use December 1993's prepayments rates as our base line, since the January and February prepayments were unusually slower due to bad weather, which also resulted in March prepaes being faster than February's. In addition, December marked the peak in prepaes .

\* We apply the 9-month 1987 prepayment slowdown rate to December 1993 prepayment peak levels, as we believe that mortgagors are at least as efficient in exercising their prepayment option as they were in 1987. We also assume that 6s were the current coupon in January, and that 8s were the current coupon in April 1987.

% It is likely that these speeds overestimate the slowdown in the near term, since the housing turnover is currently high, and will lead to increased activity in summer. We also expect to observe higher PSAs for 1993 production MBSs, as the standard seasoning curve is likely to be violated for these MBSs, which were originated as a result of refinancings, and not from housing turnover activity.

# GNMA 30-year Prepayments (PSA and CPRs) versus Mortgage Rates 1986-1988

GNMA 30-yr Prepayments (8601-8812)



GNMA 30-yr Prepayments (8601 - 8812)

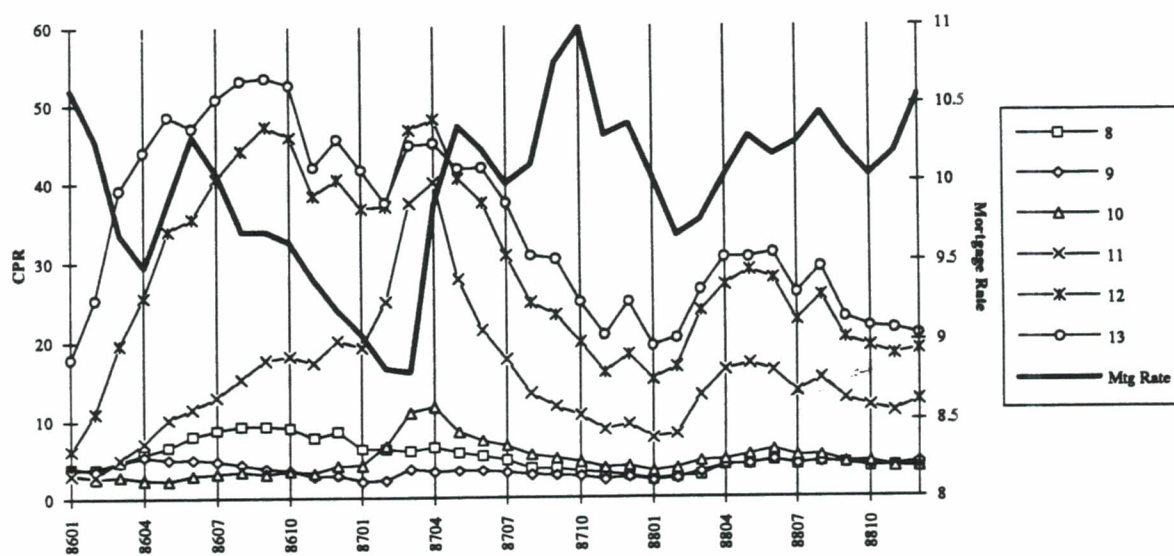




Table 5: GNMA 30-yr. MBSs - PSAs in 1987

	Mtg Rate (t-1)	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
April 1987	8.81	112	157	131	361	833	859	756
January 1988	10.37	46	60	56	98	136	252	323
1-Mo. Change	1.05	-12%	3%	-2%	-31%	-32%	-17%	-7%
3-Mo. Change	1.40	-5%	-8%	-14%	-48%	-58%	-38%	-17%
6-Mo. Change	1.95	-33%	-39%	-36%	-64%	-76%	-61%	-45%
9-Mo. Change	1.56	-59%	-62%	-57%	-73%	-84%	-71%	-57%

Table 6: GNMA 30-yr. MBSs - CPRs in 1987

	Mtg Rate (t-1)	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
April 1987	8.81	4.0	6.5	3.3	11.8	40.0	48.0	45.0
January 1988	10.37	1.7	2.3	2.1	3.4	7.7	15.1	19.4
1-Mo. Change	1.05	-20%	-11%	4%	-28%	-30%	-16%	-7%
3-Mo. Change	1.40	-18%	-26%	-2%	-43%	-56%	-36%	-17%
6-Mo. Change	1.95	-39%	-48%	-18%	-61%	-73%	-59%	-45%
9-Mo. Change	1.56	-59%	-64%	-37%	-71%	-81%	-68%	-57%

Table 7: GNMA 30-yr. MBSs - 1994 Projections, using 1987 experience

	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%
Dec. 1993 PSA +, ^	152	181	1148	1142	899	698
Dec. 1993 CPR +	0.4	2.3	38.7	61.2	53.9	41.9
Mar. 1994 Actual PSA	87	179	744	936	845	715
Mar. 1994 Actual CPR	0.7	2.9	28.3	47.6	50.7	42.9
Projected PSA Δ *	-62%	-57%	-73%	-84%	-71%	-57%
Projected CPR Δ *	-64%	-37%	-71%	-81%	-68%	-57%
Projected PSA * ^	58	78	310	183	261	300
Projected CPR *	0.1	1.4	11.2	11.6	17.2	18.0

+ We use December 1993's prepayments rates as our base line, since the January and February prepayments were unusually slower due to bad weather, which also resulted in March prepaes being faster than February's. In addition, December marked the peak in prepaes .

^ GNMA prepayments are currently high, due the VA's letter detailing their streamlined refinancing programs; however, we expect the impact of this letter to burnout. This implies that our equilibrium GNMA prepayments are biased on the high side.

\* We apply the 9-month 1987 prepayment slowdown rate to December 1993 prepayment peak levels, as we believe that mortgagors are at least as efficient in exercising their prepayment option as they were in 1987. We also assume that 6s were the current coupon in January, and that 8s were the current coupon in April 1987.