The New Prepayment Regime

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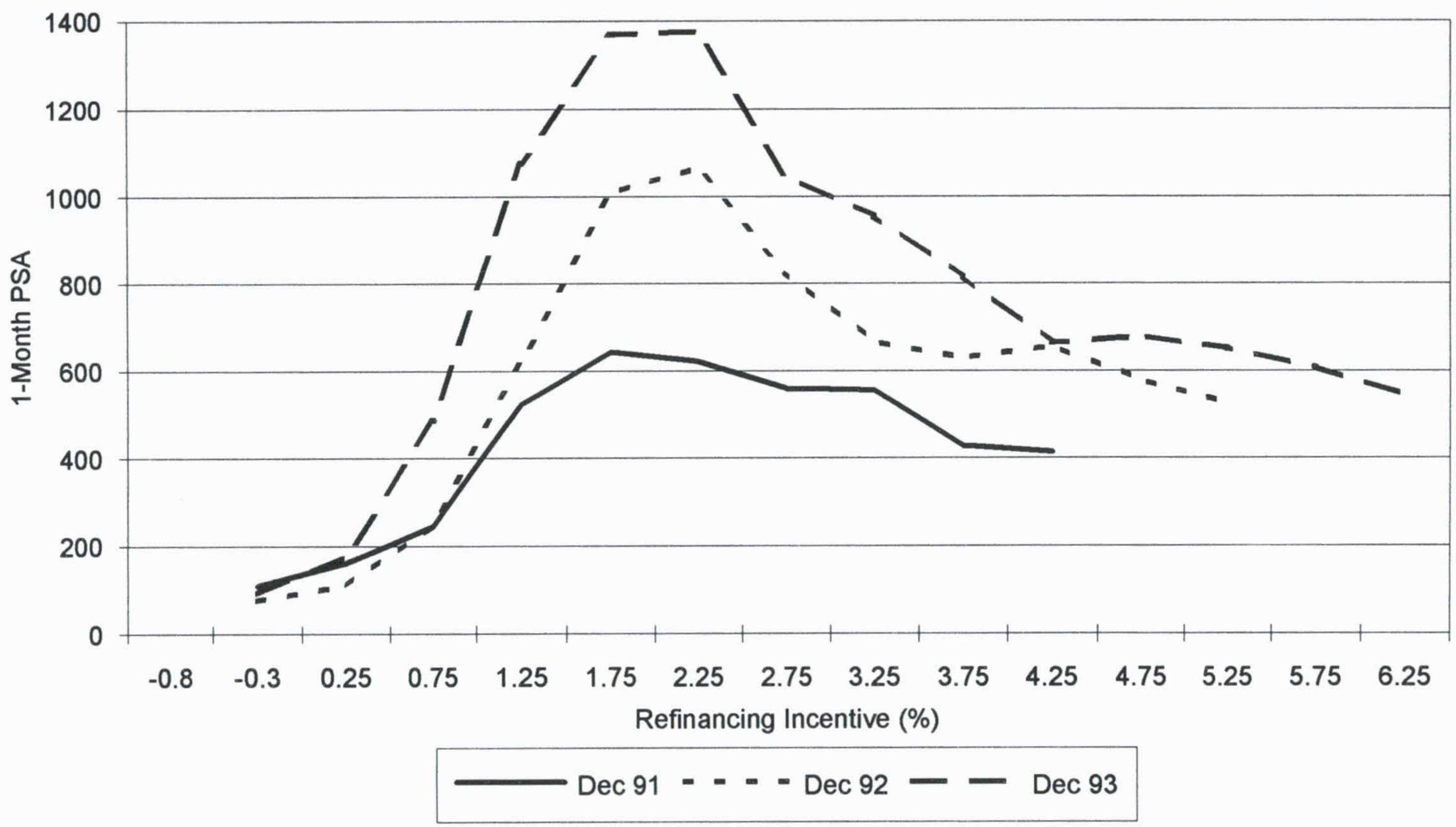
Changes in Prepayment Behavior - Conventional 30-yr MBSs
1991-1993



Structural Changes in the Mortgage Market

- **Sensitivity to the shape of the yield curve** - coming of age of 15-yr, ARM and Balloon products.

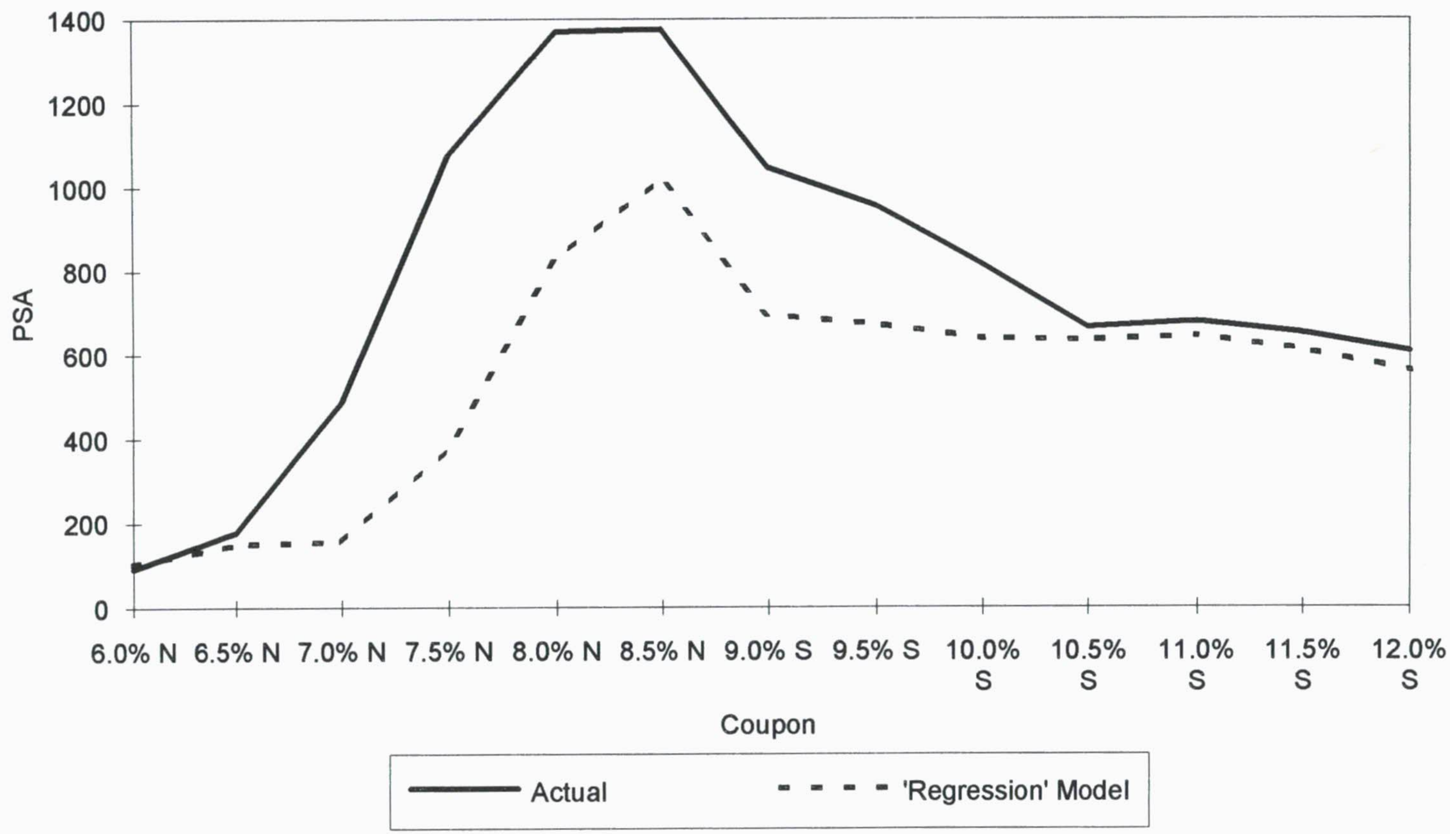
- **Increased sensitivity to refinancing opportunities** - no-point, no-cost mortgages, and aggressive marketing by mortgage bankers.

- **Changes in Burnout** - availability of low- and no-equity loans, and growth of B- & C-credit loan market.

'Regression' Model

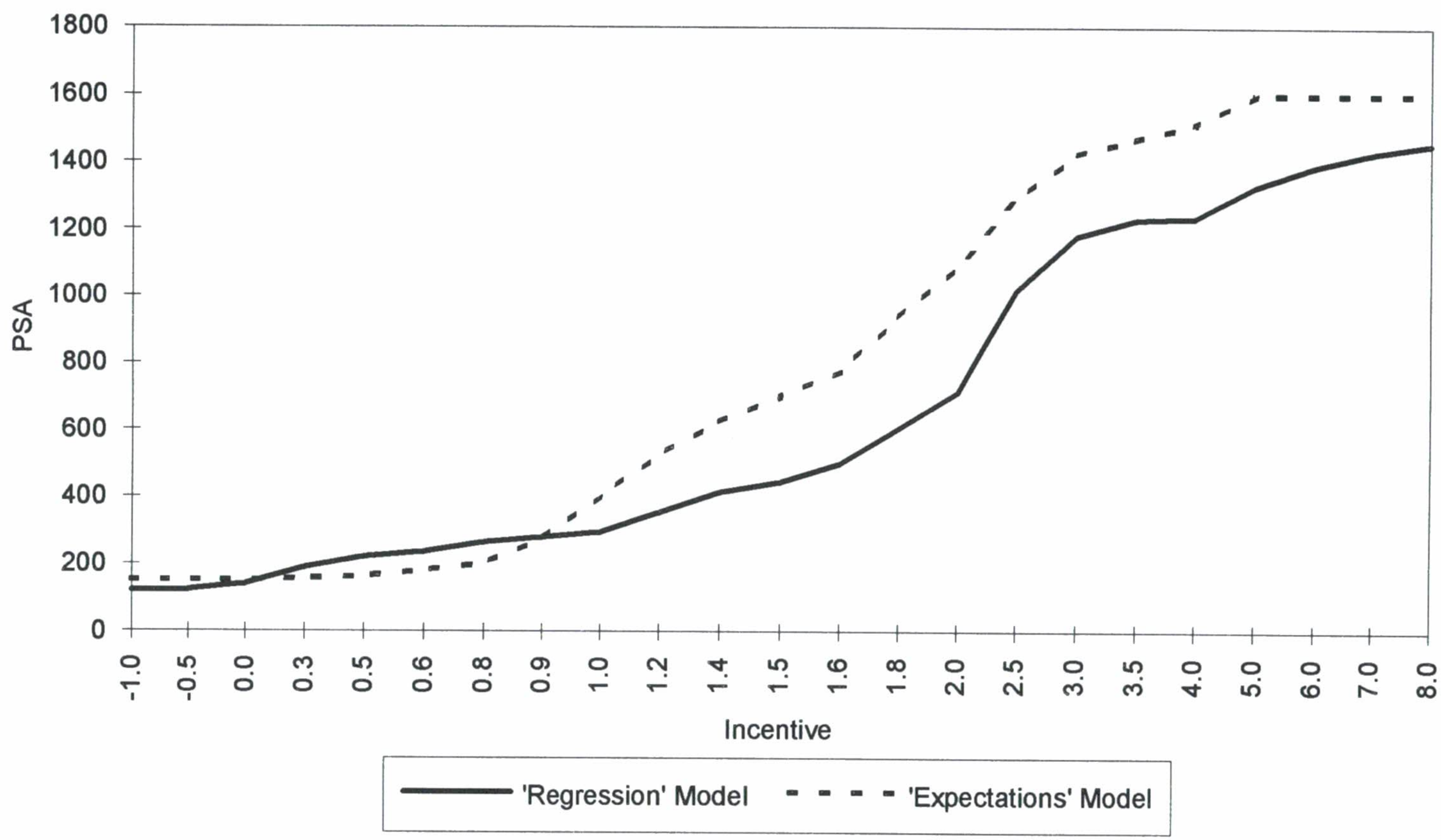
(fitted on data from Jan 1992 - Feb 1993)

Actual versus Estimated Prepayments - December 1993



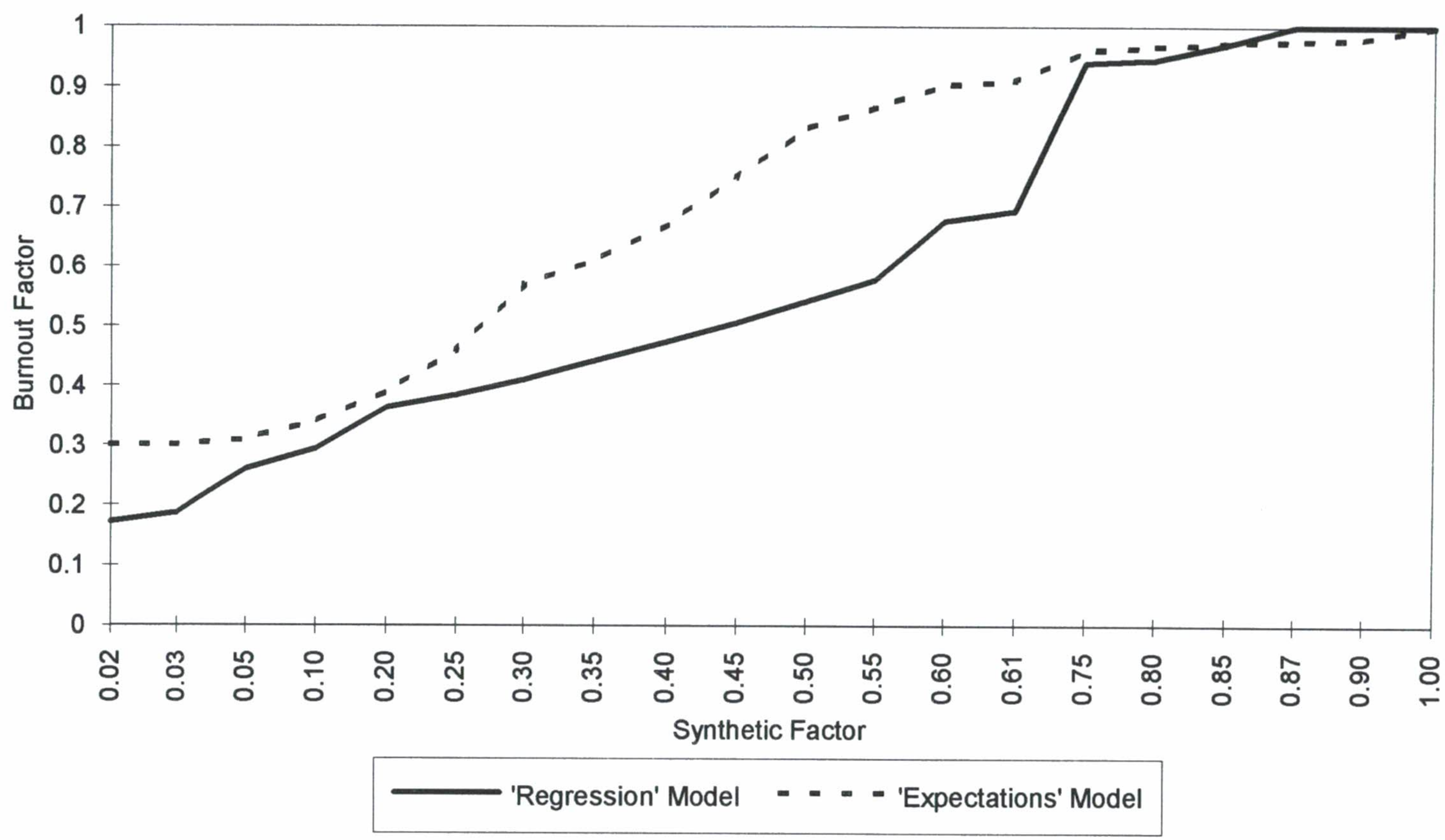
'Expectations' Model

Increase responsiveness to refinancing incentives



'Expectations' Model

Reduce burnout



The Nomura 'Synthetic Factor'

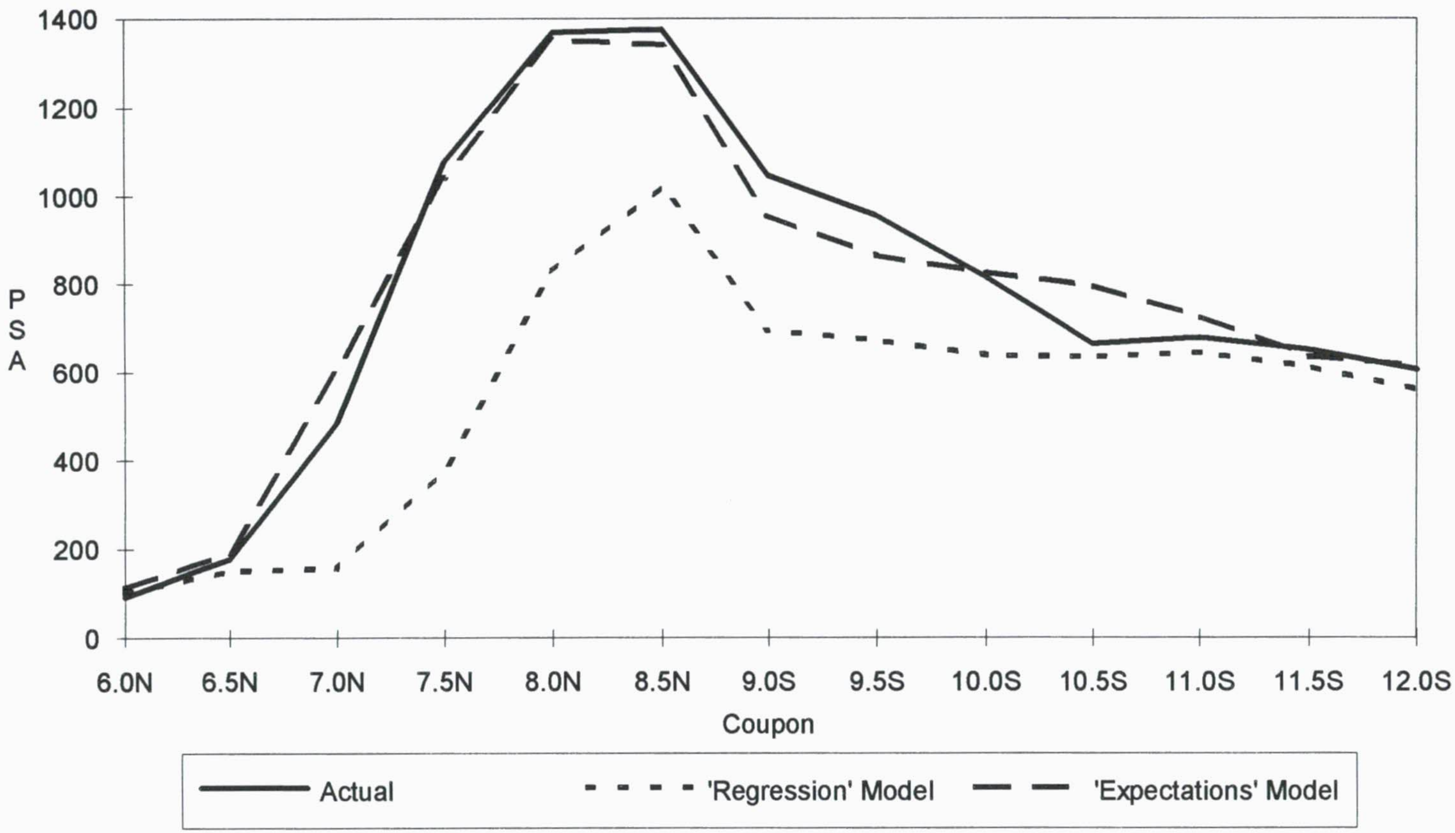
- The 'synthetic factor' accumulates the "in-the-money" prepayments for a given pool, separating them from demographic related prepayments.

- We use the pool's age to recreate the pool's interest rate experience.

- The synthetic factor allows us to avoid specific pool factor distortion, as it does not use the pool's securitization date or actual factor to determine burnout.

'Expectations' Model

Actual versus Estimated Prepayments - December 1993



'Market Implied' Model

OAS Analysis using the Nomura 'Expectations' Model

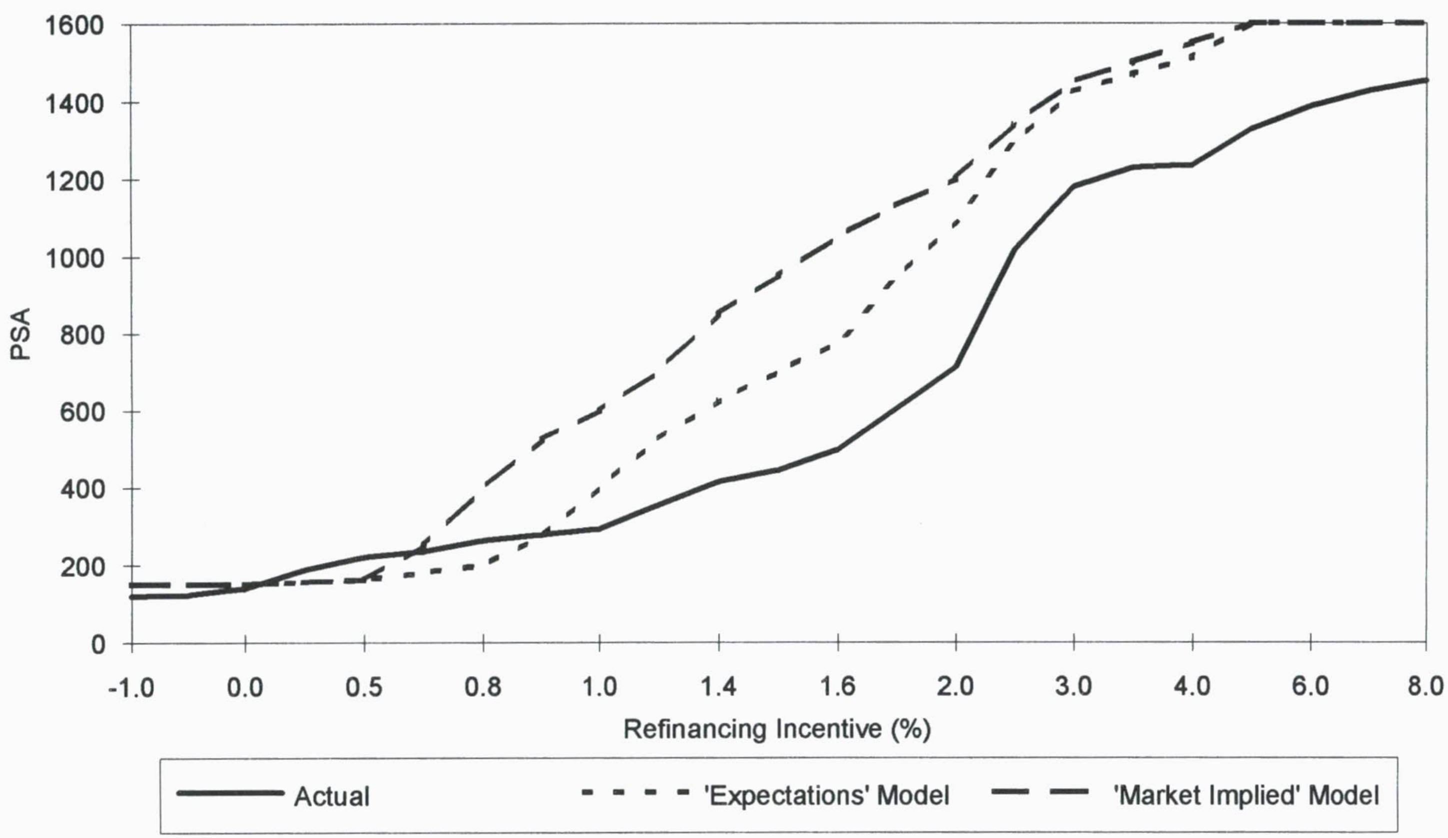
	Price	OAS	OA Duration	OA Conv.
FNMA 8.0 MBS	104-31	34	1.83	-1.62
FNMA Trust 237 IO (8.0s)	23-24	395	-30.73	-7.65

Data as of 2/7/94

- Use IO and Passthrough markets to derive market implied model
- Modify prepayment model to equate OASs

'Market Implied' Model

Further increase responsiveness to refinancing incentives



'Market Implied' Model

- Decrease refinancing threshold further, increase sensitivity to refinance

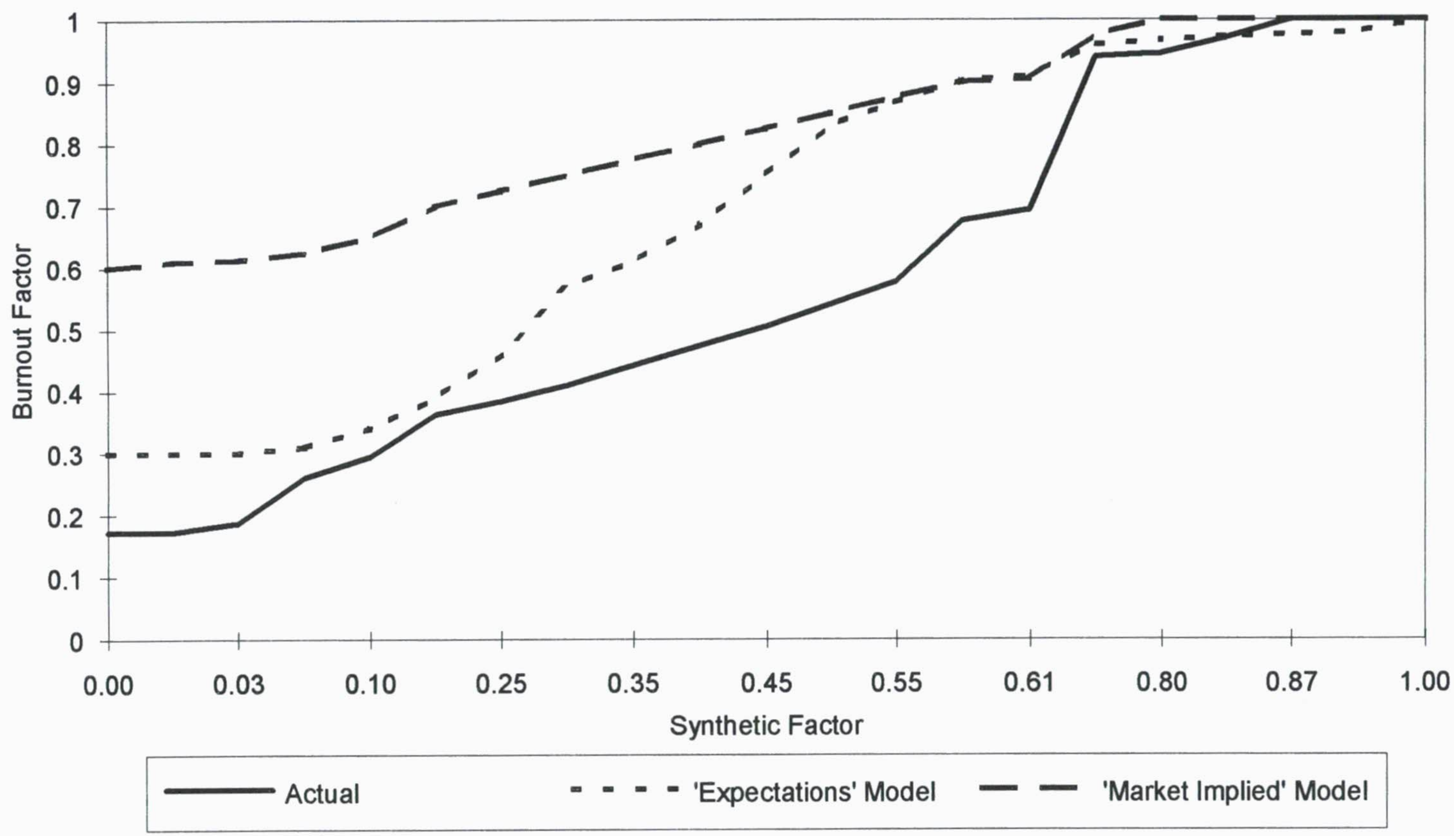
OAS Analysis changing only the refinancing incentive curve

	Price	OAS	OA Duration	OA Conv.
FNMA 8.0 MBS	104-31	23	1.73	-1.25
FNMA Trust 237 IO (8.0s)	23-24	123	-32.78	0.62

Data as of 2/7/94

'Market Implied' Model

Further reduce burnout



'Market Implied' Model

- Decrease burnout as well

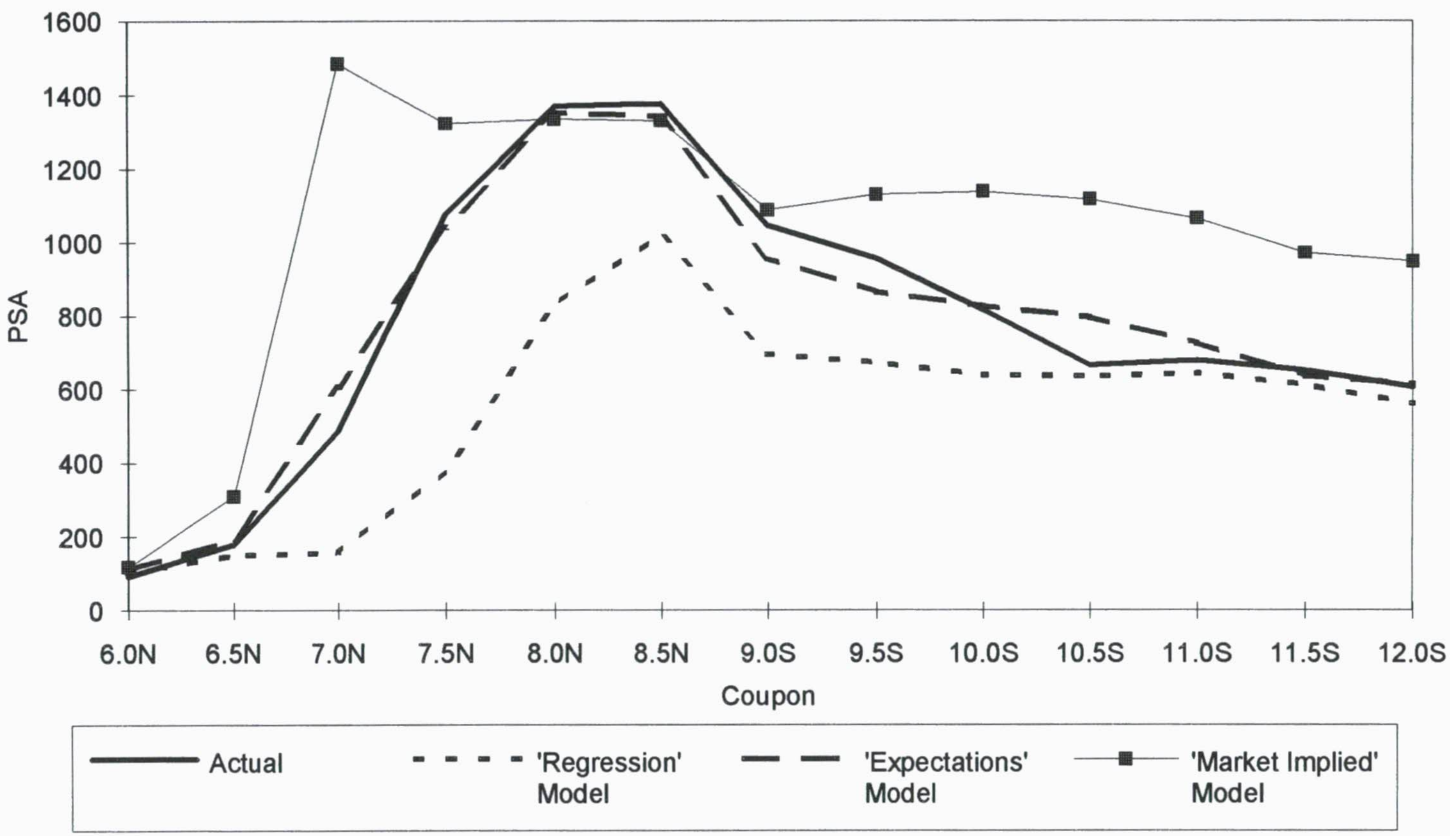
OAS Analysis using the 'Market Implied' Model

	Price	OAS	OA Duration	OA Conv.
FNMA 8.0 MBS	104-31	0	1.07	-1.39
FNMA Trust 237 IO (8.0s)	23-24	0	-39.36	-0.45

Data as of 2/7/94

'Market Implied' Model

Actual versus Estimated Prepayments - December 1993



Comparing the models - Passthroughs

Passthrough	Price	Regression Model OAS	Expected Model OAS	Implied Model OAS
FNMA 6.0 N	95-31	39	68	65
FNMA 6.5 N	98-27	43	64	60
FNMA 7.0 N	101-15	46	58	51
FNMA 7.5 N	103-19	47	47	33
FNMA 8.0 N	104-31	50	34	0
FNMA 8.5 N	105-26	64	39	-9
FNMA 9.0 S	107-05	55	26	-68
FNMA 9.5 S	109-00	27	-15	-201
FNMA 10.0 S	110-16	6	-52	-309
FNMA 10.5 S	111-19	-2	-55	-370
FNMA 11.0 S	113-05	-10	-53	-420
FNMA 11.5 S	113-29	33	7	-326

Data as of 2/7/94

Comparing the models - IOs

IOs	Trust	Price	Regression Model OAS	Expected Model OAS	Implied Model OAS
FNMA 6.5 N	249	35-16	420	233	47
FNMA 7.0 N	240	33-00	488	270	70
FNMA 7.5 N	221	28-04	684	312	40
FNMA 8.0 N	237	23-24	877	321	0
FNMA 8.5 N	168	18-00	1540	922	244
FNMA 9.0 S	6	18-12	1219	765	-384
FNMA 9.5 S	4	19-12	1008	625	-855
FNMA 10.0 S	2	21-16	586	196	-1481
FNMA 10.5 S	50	23-08	294	-376	-2292

Data as of 2/7/94

Summary

- **Prepayment behavior has changed in at least 3 ways:**
  - **a) Less burnout, but burnout still not understood**
  - **b) Lower threshold to refinance**
  - **c) Faster response to refinance**

- **The changing prepayment dynamics have made it difficult to use OAS models directly to determine value. This is made more difficult by the implicit assumption of an unchanging prepayment function over the life of the bond. Prepayment and OAS models are more useful for calibrating the markets' expectations, to determine if specific scenarios are likely. This, however, makes relative value analysis more subjective.**

- **Prepayment models need to be forward looking.**

Prepayment Analysis for 1994

- **We need to concentrate on understanding changes in borrower behavior.**

- **Identifying structural issues to differentiate prepayment behavior will become important.**

- **We will have to understand how newly created low coupon MBSs, especially 1993 production, most of which were created through refinancings, will season and prepay, once rates rise.**

- **If rates have truly bottomed out, 1994 production low coupon MBSs, which are likely to have been originated as a result of the strong housing market, are likely to prepay and season differently than 1993 production of similar coupons, since the newer loans are likely to have paid points, and will have "truer" seasoning.**

- **We have found that GNMA prepayment speeds vary with originator size - smaller originators appear less aggressive about inducing prepayments.**