

NEW PREPAYMENT MODEL: MOBILE HOMES

Summary:

Andrew Davidson & Co., Inc. (AD&Co) has developed several sector-specific asset backed security prepayment models using historical time series-cross sectional data. In this issue we will discuss the features of the Mobile Home Prepayment model.

The Data

Andrew Davidson & Co., Inc. has modeled an extensive time series-cross sectional database of mobile home loan pools' prepayment histories. The database (provided by Bloomberg LP) consists of over two thousand loan pools tracked over several years through various interest rate environments. This presents a unique opportunity to model the complex prepayment behavior of mobile home loans. After a rigorous study of the data, we have developed prepayment models that capture the specific prepayment characteristics of mobile home loans.

The Model

The AD&Co Mobile Home Prepayment model consists of two submodels: 15 and 30 year amortization classes. It was determined that the prepayment behaviors are sufficiently different to warrant separate treatments.

The underlying factors common to both submodels are:

1. Coupon Effect
2. Age Effect
3. Collateral Effect
4. Interest Rate Effect
5. Seasonality Effect

Mobile Home loans have amortization terms comparable to fixed rate loans secured by real estate. Hence the incentives to refinance or prepay are similarly sensitive to the loans' coupon rates. These relationships are complex and handled in a non-linear fashion by the model.

As the Mobile Home loans age they exhibit prepayment behaviors that are specific to the amortization terms of the pools. We observed accelerated prepayment behaviors for the early years of the loans, followed by relatively stable rates for the majority of the lives of the loans, ending with accelerated prepayment rates. These non-linear relationships are handled by advanced econometric estimation techniques.

The Mobile Home loans' collateral types capture various credit effects that affect prepayment rates. The sizes and ages of the mobile homes and the types of ownership are all proxies that capture the credit qualities of the loans. The AD&Co model incorporates several of these factors into its submodels to further enhance their predictive abilities.

It was determined that the Mobile Home loan prepayment rates are sensitive to long term interest rates through complex lagged relationships. The AD&Co model extracts the most significant of these effects, yet remains simple to implement.

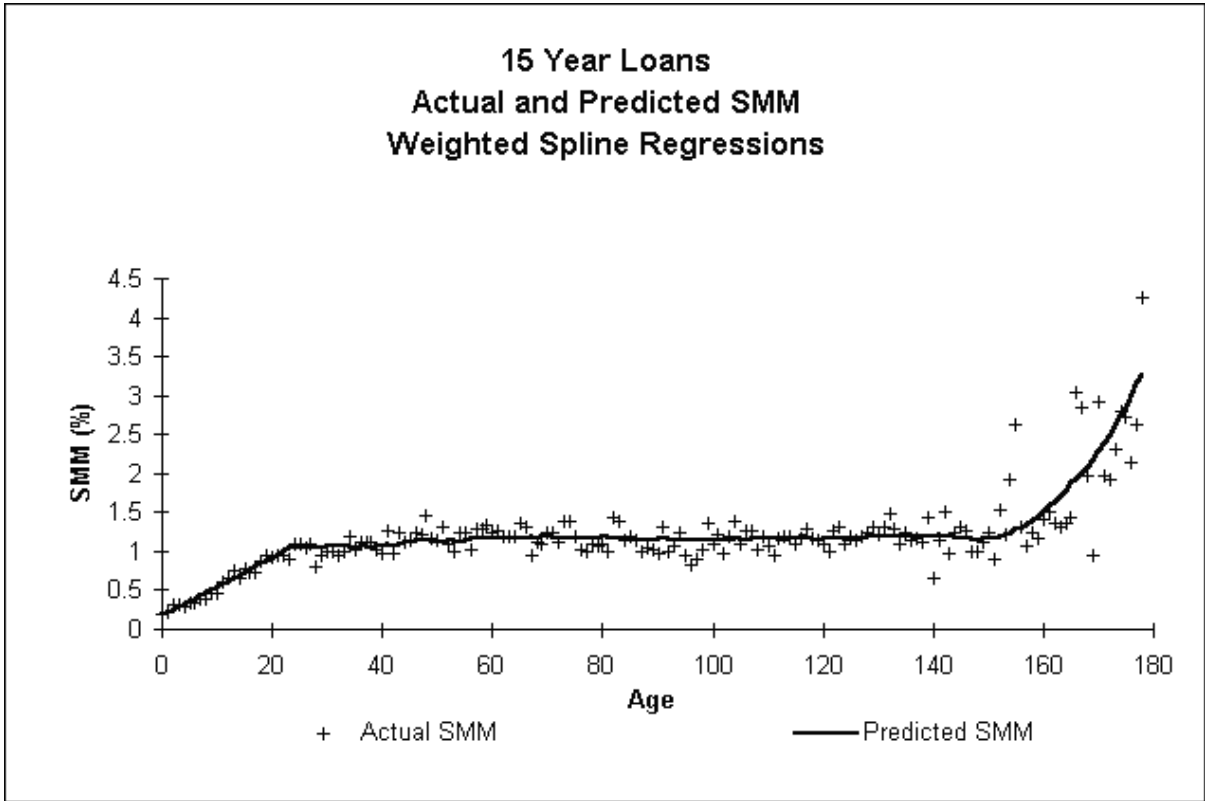
Finally, seasonality in prepayments was detected in the data. The model corrects for this effect in a way that doesn't overly complicate the submodels.

The resulting submodels have been rigorously tested and perform very well over large time periods. An example of the 15 year loan pool submodel's actual versus predicted SMM performance is shown below:

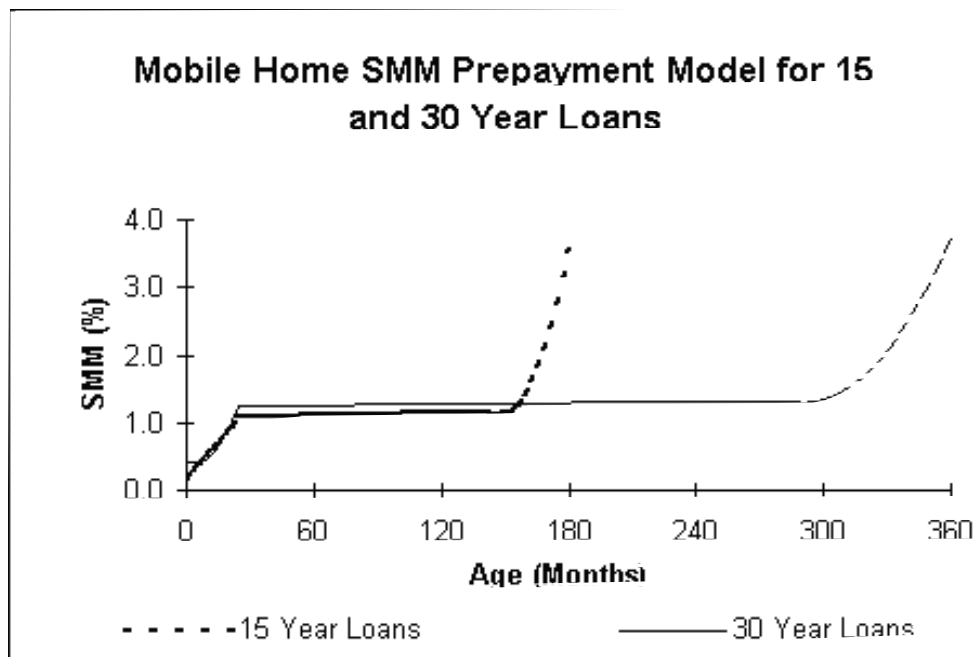
Model Usage

The AD&Co Mobile Home Prepayment model allows the user to input several loan pool characteristics outlined in the above section and calculates the SMM (Single Monthly Mortality) or CPR (Constant Prepayment Rate) vectors. In addition, the model displays a graph of both the 15 and 30 year aging curves.

By changing the input parameters various "what if" scenarios can be calculated and printed out for further analysis. The user can also plot the MHP (Mobile Home Prepayment) curve for a selected reference speed as a basis of comparison for the Mobile Home's forecasted prepayment rates.



An example of the graph generated by the AD&Co model is:



Conclusion

AD&Co's Mobile Home Prepayment model is highly predictive and the result of sophisticated econometric techniques that capture the complex underlying factors affecting prepayment behavior. The model is easy to

implement and can be used for forecasting, loss estimation, risk and OAS analyses. Andrew Davidson & Co is continually refines and re-estimates all the model as more data become available to ensure the highest predictive ability.

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Quantitative Analysis

FGLMC 30 Year			MARKET April Settlement 3/20/98		SPREAD TO			OPTIONS ANALYSIS			RISK		
CPN	WAM	AGE	Price	Yield	WAL TRSY	Zero Curve	Fwd Curve	OAS	Option Cost	Fwd Curve Effect	Mod Dur	Eff Dur	Convex
6.0	341	19	97-3	6.53	97	91	90	56	34	1	6.2	4.7	-0.9
6.5	354	6	99-14	6.64	108	102	102	49	53	0	6.4	4.1	-1.4
7.0	355	5	101-14	6.71	116	114	115	47	68	0	4.5	3.1	-1.5
7.5	355	5	102-23	6.75	118	115	120	56	64	-4	3.4	2.4	-1.3
8.0	352	8	103-25	6.59	108	96	103	52	51	-6	2.6	1.5	-1.0
8.5	352	8	104-16	6.51	101	85	93	54	38	-6	2.2	1.2	-0.6
9.0	335	25	105-30	6.36	86	74	82	55	27	-7	2.3	1.3	-0.2
9.5	321	39	107-11	6.54	104	98	106	93	13	-7	2.5	1.8	0.1
10.0	268	92	109-0	6.37	87	86	89	100	-10	-3	2.6	2.0	0.3

		PREPAYMENT				PREPAYMENT DURATION				TSY HEDGE POSITIONS			
CPN	Price	Base PSA	FWD PSA	Base WAL	FWD WAL	Scale	Steep	Slide	Burn	2 Year	5 Year	10 Year	30 Year
6.0	97-3	126	123	9.2	9.4	0.12	-0.27	-0.04	0.00	0.74	0.24	0.23	0.06
6.5	99-14	132	128	9.7	9.9	0.01	-0.23	-0.34	0.00	0.95	0.21	0.18	0.04
7.0	101-14	268	222	6.0	7.0	-0.11	-0.20	-0.59	-0.01	1.02	0.16	0.11	0.03
7.5	102-23	390	343	4.4	4.9	-0.21	-0.19	-0.74	0.00	1.01	0.13	0.06	0.02
8.0	103-25	532	486	3.2	3.5	-0.34	-0.23	-0.92	-0.01	0.89	0.09	0.01	0.01
8.5	104-16	655	610	2.6	2.8	-0.43	-0.28	-0.94	-0.01	0.75	0.09	-0.01	0.00
9.0	105-30	518	494	2.7	2.8	-0.58	-0.37	-1.03	-0.02	0.62	0.13	0.00	-0.01
9.5	107-11	464	446	3.0	3.1	-0.60	-0.42	-0.88	-0.10	0.62	0.20	0.03	-0.01
10.0	109-0	460	453	3.0	3.0	-0.65	-0.48	-0.67	-0.47	0.60	0.25	0.05	-0.01

GNMA 30 Year			MARKET April Settlement 3/20/98		SPREAD TO			OPTIONS ANALYSIS			RISK		
CPN	WAM	AGE	Price	Yield	WAL TRSY	Zero Curve	Fwd Curve	OAS	Option Cost	Fwd Curve Effect	Mod Dur	Eff Dur	Convex
6.0	339	21	97-10	6.49	93	87	86	47	39	1	6.3	5.6	-1.0
6.5	348	12	99-14	6.64	108	103	103	53	50	1	6.1	4.8	-1.4
7.0	354	6	101-13	6.80	124	121	121	56	64	0	5.9	3.9	-1.9
7.5	353	7	102-27	6.93	138	135	138	62	76	-2	4.7	2.7	-2.1
8.0	353	7	103-27	6.94	138	134	143	67	76	-8	3.5	1.6	-1.8
8.5	352	8	105-20	6.27	77	59	70	21	49	-11	2.5	0.3	-1.0
9.0	329	31	107-1	5.96	46	32	43	10	33	-10	2.4	0.5	-0.3
9.5	321	39	108-7	6.06	56	46	56	37	19	-9	2.5	1.0	0.0
10.0	261	99	109-19	6.35	84	84	92	88	4	-7	2.7	1.8	0.2

		PREPAYMENT				PREPAYMENT DURATION				TSY HEDGE POSITIONS			
CPN	Price	Base PSA	FWD PSA	Base WAL	FWD WAL	Scale	Steep	Slide	Burn	2 Year	5 Year	10 Year	30 Year
6.0	97-10	125	119	9.2	9.5	0.06	-0.19	-0.08	0.00	0.77	0.22	0.30	0.09
6.5	99-14	142	135	8.9	9.2	-0.03	-0.16	-0.30	0.00	0.93	0.23	0.24	0.07
7.0	101-13	162	155	8.6	8.9	-0.12	-0.15	-0.63	-0.01	1.08	0.19	0.17	0.04
7.5	102-27	233	205	6.6	7.3	-0.20	-0.16	-0.94	-0.01	1.10	0.14	0.08	0.02
8.0	103-27	364	314	4.6	5.2	-0.29	-0.19	-1.30	-0.01	1.04	0.11	-0.01	0.01
8.5	105-20	574	525	3.0	3.3	-0.50	-0.28	-2.20	-0.02	0.87	0.07	-0.10	-0.01
9.0	107-1	499	473	2.8	2.9	-0.67	-0.36	-1.77	-0.03	0.66	0.11	-0.07	-0.02
9.5	108-7	481	461	2.9	3.0	-0.73	-0.41	-1.45	-0.07	0.61	0.15	-0.03	-0.01
10.0	109-19	425	411	3.2	3.3	-0.67	-0.34	-1.00	-0.38	0.61	0.24	0.02	-0.01