
The Impact of Prepayment Penalties on Subprime Collateral Speeds

Over the past few years, subprime mortgage issuers have increasingly turned to prepayment penalties as a means of limiting voluntary prepayments or mitigating their effect on earnings. Originally limited mostly to the B&C subprime market, the penalties recently have become widespread in traditional home equity lending as well. In this article, we review the impact of prepayment penalties on speeds of fixed-rate B&C collateral originated since 1997.

The loans were underwritten by Long Beach, Ameriquest, and New Century and placed into four fixed-rate deals: SAL97.LB6, SAL98.AQ1, SAL98.NC3, and SAL98.NC6. A cross section of the collateral is provided in Figure 8. Compared to HELs, the balances are higher, the loan terms are longer, and the WACs are somewhat lower⁷, indicating higher-credit borrowers.

Over 75% of all loans carry a prepayment penalty, the amount of which is generally equal to six months' worth of interest on 80% of the original principal balance (*the standard penalty*).⁸ The most common penalty term is five years. The penalties are evenly distributed among deals, ranging from 72% of the original principal balance for SAL98.AQ1 to 81% for SAL98.NC3.

⁷ The original deal WACs range from 10.16% for SAL98.AQ1 to 9.72% for SAL98.NC3.

⁸ In case of partial prepayments, the penalty is enforced on the amount of principal prepaid in any 12 months that exceeds 20% of the original loan amount.

Figure 8. Original Average Characteristics for Four Subprime Deals (SAL97.LB6; SAL98.AQ1; SAL98.NC3; SAL98.NC6)

Loan Amount	\$83,300
Term	334 Months
WAC	9.99%
LTV	73%
First Lien	97.9%
Geographical Concentration ^a	
No Penalty	TX 20%, IL16%, CA 11%, NJ, PA 6%, CO, NM 5%, MD 4%
With Penalty	CA 38%, FL 9%, MI, NY, OH, WA 4%
Penalty Term	
No Penalty	24%
1 Year	5
3 Years	8
5 Years	58
Other	5
Penalty Type	
No Penalty	24%
6 months' interest on 80% of original balance	63
1% of prepaid or original balance	6
Other	7

^aDifferences in geographical distribution of penalty and no-penalty loans are due, in part, to differences in state laws regulating prepayment penalties. Source: Salomon Smith Barney.

Prepayment penalties have a substantial impact on speeds.

Prepayment penalties have a substantial impact on speeds. Figure 9 shows historical lifetime prepayment speeds for the aggregate collateral divided according to penalty term.⁹ Of the penalty-protected loans, only those subject to the standard penalty are included in the calculation. Both the three-year and five-year penalties are successful in reducing prepayment speeds. During the first year and a half of the life of the loan, five-year penalty loans prepay 12.7% CPR slower than loans without a penalty, while speeds for three-year penalty loans are 16.6% CPR slower than for non-penalty loans. These represent 44% and 58% slowdowns, respectively, **making the penalty one of the most important determinants of prepayments.** The higher relative significance of the three-year penalty is expected on economic grounds, since the shorter time to penalty expiration makes it more attractive to postpone refinancing until after the penalty has expired.¹⁰

Penalty type and borrower credit are significant.

Penalty type also plays a role. Although the small number of loans with nonstandard penalties makes accurate speed calculations difficult, historical prepayments suggest that three-year penalty loans subject to the standard penalty prepay at less than half the level of three-year penalty loans with a penalty of 1% of the original balance. To isolate the effect of penalties from other significant determinants of prepayments, such as interest rates and borrower's credit, we compute the lifetime speeds while controlling for these additional factors. The second and third rows of Figure 9 show prepayments for A-credit borrowers and, separately, for loans that are nearly at the money.¹¹ The effect of both types of penalties is enhanced for A-credit borrowers compared with the aggregate loan pool, with a particularly pronounced change for the three-year penalty. Likely, the greater financial sophistication that typically accompanies higher credit often leads to a more critical examination of refinancing

⁹ Lifetime speeds in this case include monthly prepayments through the loan age of 19 months.

¹⁰ This intuitive observation can be quantified. The result is that the refinancing incentive decreases with decreasing time to penalty expiration.

¹¹ The borrower's credit is determined by the letter grade assigned by the loan underwriter. For purposes of this calculation, we consider a loan to be at-the-money if the conforming mortgage rate is within 50bp of the rate at loan origination.

opportunities and to a deferment of refinancing. The last row of Figure 9 shows that the impact of penalties is not a byproduct of the interest rate environment, but persists even in the absence of rate incentives or disincentives.

Figure 9. Historical Lifetime Prepayment Speeds for Four Subprime Deals (SAL97.LB6; SAL98.AQ1; SAL98.NC3; SAL98.NC6)

	No Penalty (% CPR)	By Penalty Term for Standard-Penalty Loans (% CPR)	
		3 Years	5 Years
All Loans	28.6	12.0	15.9
A-Credit Borrowers	28.7	9.7	14.5
No Rate Incentive	24.8	13.4	15.7

Source: Salomon Smith Barney.

Seasoning patterns of three-year and five-year penalty loans are different.

The seasoning patterns of loans carrying different penalties are displayed in Figure 10. While no-penalty and five-year penalty loans show a marked acceleration in prepayments between loan ages nine and 12 (typically related to the first opportunity to demonstrate improved credit and refinance into a higher credit class), the speedup is much less pronounced for three-year penalty loans. In addition, the difference between three-year and five-year penalty loan speeds increases with loan age. Both of these features are consistent with economic modeling that suggests an inverse relationship between the refinancing incentive and time to penalty expiration.

Figure 10. Prepayments Versus Loan Age for Different Penalties



Source: Salomon Smith Barney.

Even though little historical data is available on speeds of seasoned loans subject to prepayment penalties, both common sense and theoretical considerations suggest that penalties should continue to play a dominant role. A strong dip in prepayments may be expected in the period immediately preceding penalty expiration. The pent-up demand accumulated over the life of the loan, in turn, likely will lead to a sharp spike in speeds shortly after the penalty has expired.

Figure 11. Percentage of ABS Floating-Rate and Fixed-Rate Issuance, 1998–1999YTD

	1998	1999
Floating Rate	40.3%	40.9%
Fixed Rate	59.7	59.1

Source: Salomon Smith Barney.

Figure 12. Year-to-Date ABS Issuance by Sector, 1998–1999 (Dollars in Millions)

	1998 (YTD)	Pct.	1999 (YTD)	Pct.
Auto Loans	\$15,446.2	21.3 %	\$23,353.6	24.4 %
Credit Cards	15,094.1	20.8	16,376.6	17.1
Home Equity Loans	27,048.2	37.2	18,587.4	19.5
Manufactured Housing	4,895.4	6.7	5,133.8	5.4
Student Loans	5,243.2	7.2	2,846.6	3.0
Other	4,948.8	6.8	29,228.6	30.6
Total	\$72,675.9	100.0 %	\$95,526.6	100.0 %

Source: MCM "Corporatewatch."

Figure 13. Comparison of Quoted Spreads and Static Spreads

	Avg. Life	Quoted Spread (bp/Curve)	Static Spread ^a	Difference
Three-Year Bullet	3.00 Yrs	58 bp	57 bp	1 bp
Five-Year Bullet	5.00	70	56	14
Wide Window Auto ^b	1.81	64	50	14
Short Auto ^c	1.06	L+6	36	NA
Wide Window HEL ^d	3.63	145	131	14
Short HEL ^e	1.16	L+10	44	NA

^a Static spread of bullets incorporates the richness or cheapness of the on-the-run Treasury benchmarks. ^b Assumes collateral original WAM of 60 months and remaining WAM of 54 months, 9% coupon, 1.3% ABS prepayment speed. ^c Assumes collateral original WAM of 60 months and remaining WAM of 30 months, 9% coupon, 1.3% ABS prepayment speed. ^d Assumes collateral remaining WAM of 174 months, 11% coupon, 20% CPR prepayment speed. ^e Assumes collateral remaining WAM of 120 months, 11% coupon, 20% CPR prepayment speed, security maturity in 30 months. CPR Constant prepayment rate. HEL Home equity loan-backed securities. NA Not available. WAM Weighted average maturity.

Source: Salomon Smith Barney.

Figure 14. Fixed-Rate ABS Secondary-Market Spreads to Benchmark Treasuries

		AAA					A				
		28 May 99	Spread Changes Over			1-Year SD	28 May 99	Spread Changes Over			1-Year SD
		Spread	1 Week	4 Weeks	52 Weeks	Spred Chgs	Spread	1 Week	4 Weeks	52 Weeks	Spred Chgs
2-Year	Retail Auto	58 bp	6 bp	4 bp	23 bp	5.4 bp	90 bp	5 bp	0 bp	34 bp	9.1 bp
	Credit Card	56	5	4	21	4.7	75	5	-3	22	5.5
	Home Equity	85	10	0	33	8.9	NA				
	Man. Housing	85	15	5	37	8.1	NA				
3-Year	Wholesale Auto	58	4	3	22	4.8	79	4	-1	25	5.3
	Credit Card	58	4	3	22	4.7	79	4	-1	25	5.3
	Home Equity	85	5	-5	22	9.0	NA				
	Man. Housing	77	0	-8	25	7.8	NA				
5-Year	Wholesale Auto	70	4	1	28	6.1	90	3	-6	28	7.1
	Credit Card	70	4	1	28	6.1	91	4	-5	29	7.1
	Home Equity	125	10	5	40	8.9	NA				
	Man. Housing	110	15	10	47	8.6	NA				
7-Year	Wholesale Auto	67	2	2	22	7.2	88	2	-4	23	8.2
	Credit Card	67	2	2	22	7.2	88	2	-4	23	8.2
	Home Equity	150	5	5	48	10.5	NA				
	Man. Housing	125	15	0	48	10.0	NA				
10-Year ^a	Wholesale Auto	97	7	5	37	8.2	127	7	9	47	8.7
	Credit Card	97	7	5	37	8.2	127	7	9	47	8.7
	Home Equity	175	5	5	50	13.0	NA				
	Man. Housing	150	15	5	50	11.2	NA				

^a On May 21, the benchmark Treasury was changed for the ten year to the on-the-run bond, causing distortions in historical comparisons.

Source: Salomon Smith Barney.

Figure 15. Floating-Rate ABS Secondary-Market Discount Margins (Over One-Month LIBOR)

		28 May 99 Spread	Spread Changes Over			1-Year SD	28 May 99 Spread	Spread Changes Over			1-Year SD
			1 Week	4 Weeks	52 Weeks	of 1-Week Sprd Chgs		1 Week	4 Weeks	52 Weeks	of 1-Week Sprd Chgs
2-Year	Retail Auto	10 bp	4 bp	3 bp	9 bp	1.8 bp	30 bp	4 bp	1 bp	15 bp	2.7 bp
	Credit Card	8	2	1	7	1.8	28	2	1	13	2.7
	Home Equity	24	2	-1	14	3.6	84	0	-16	56	7.2
3-Year	Wholesale Auto	10	1	1	7	1.9	31	1	0	11	2.6
	Credit Card	10	1	1	7	1.9	31	1	0	11	2.7
	Home Equity	26	-1	-2	13	3.4	92	0	-13	61	7.8
5-Year	Wholesale Auto	16	1.5	2	8	2.0	38	1	2	12	3.1
	Credit Card	16	1.5	2	8	2.0	38	1	2	12	3.1
	Home Equity	30	1	-3	15	3.6	95	1	-15	62	8.5
7-Year	Wholesale Auto	21	2	4	10	2.4	43	2	-1	15	3.9
	Credit Card	21	2	4	10	2.4	43	2	1	15	3.9
10-Year	Wholesale Auto	28	3	5	12	3.9	62	3	5	29	4.1
	Credit Card	28	3	5	12	3.9	62	3	5	29	4.1

LIBOR London Interbank Offered Rate. SD Standard deviation.

Source: Salomon Smith Barney.

Figure 16. Representative Secondary Trading Levels

Floating-Rate Issue	Avg. Life	DM	Price	Cap
MBNA 97-N A	1.5Yrs	8	100-00	None
FUSAM 95-2 A	2.8	10	100-15	None
CCIMT96.5 A	4.3	14	100-05+	None
MBNA 96-B A	6.8	21	101-05	None
FUSAM 98-6 A	9.2	29	100-23+	None

Fixed-Rate Issue	Coupon	Avg. Life	Spread	Price	Yield	Static Spread
ONYX 98-1 A	5.95	1.4@1.6 ABSYrs	70bp	100-03	5.94%	55bp
PRAT 98-3 A3	5.88	1.2@1.5 ABS	58	100-06	5.78	52
CHAS 98-C A4	5.85	2.4@1.5 ABS	60	99-25	6.02	50
CCIMT 98-1 A	5.75	1.6	56	99-27+	5.84	45
FUSAM 97-6 A	6.42	3.1	61	101-00+	6.14	53
MBNA 97-1 A	6.55	5.2	70	101-08+	6.35	60
CCIMT 98-2 A	6.05	8.6	85	97-02+	6.50	67

Source: Salomon Smith Barney.

Figure 17. Floating-Rate CLO and CDO Indicative Discount Margins (over Three-Month LIBOR)

	US Collateral, Prime Quality CLO Balance Sheet-Driven		High Yield Collateral CDO Investor-Driven	
	3 Year	5 Year	7 Year	10 Year
AAA	18 bp	23 bp	45 bp	70 bp
AA	—	—	70	90
A	43	48	120	140
BBB	—	—	210	230
BB	—	—	550	550

CLO Collateralized loan obligation. CDO Collateralized debt obligation.

Source: Salomon Smith Barney

Figure 18. Recent Issuance

Date	Issuer	Asset Type	Class	Size (Mil.)	Credit Enhancement	WAL (Yrs)	Pricing Speed	Spread
26 May 99	Advanta 1999-2 ^a	HE	A-1	\$114.00	AMBAC Surety	0.80		10/1M LIBOR
			A-2	90.00		2.00		85/2YR WI
			A-3	40.00		3.00		85/6.50 5/02
			A-4	95.00		5.01		125/7.25 5/04
			A-5	31.50		7.89		145/6.625 5/07
			A-6	41.00		6.25		112/5.875 11/05
			A-7	106.00		2.57		22/1M LIBOR
26 May 99	First Security Auto Owners Trust 1999-2	AL	A-1	\$199.00	Sr./Sub.	0.29		-5/3M SYNTH LIBOR
			A-2	232.00		1.00		15/SYNTH LIBOR
			A-3	276.00		2.00		73/6.50 5/01
			A-4	278.00		3.34		78/5.875 9/02
			B	52.00		2.17		95/6.625 7/01
26 May 99	Navistar Financial Corp Owners Trust 1999-A	AL	A-1	\$147.00	Sr./Sub.	0.27		-4/3M LIBOR
			A-2	197.00		1.00		16/SYNTH LIBOR
			A-3	200.00		2.01		70/6.625 6/01
			A-4	145.75		3.09		75/6.00 7/02
			B	25.02		2.22		95/6.50 8/01
25 May 99	EQCC 1999-2	HE	A-1F	\$287.00	AMBAC Surety	0.95		21/SYNTH LIBOR
			A-2F	138.00		2.00		75/6.625 6/01
			A-3F	175.00		3.16		82/6.00 7/02
			A-4F	95.00		5.09		117/7.25 5/04
			A-5F	48.10		6.61		136/5.625 2/06
			A-6F	82.50		6.15		104/6.50 8/05
			A-1A	45.00		2.56		23/1M LIBOR
25 May 99	BA Master Credit Card Trust 1999-A ^a	CC	A	\$432.00	Sr./Sub.	5.00		16/1M LIBOR
			B	27.50		5.00		36/1M LIBOR
			C	40.00		5.00		72/1M LIBOR
21 May 99	GreenPoint 99-3 ^a	MH	A-1	\$153.60	MBIA Surety Bond	1.09		9/1M LIBOR
			A-2	27.00		2.25		70/6.50 8/01
			A-3	95.30		3.09		80/6.25 6/02
			A-4	137.80		5.00		99/4.75 2/04
			A-5	115.00		7.81		115/6.50 10/06
			A-6	43.00		10.27		135/5.625 5/08
			A-7	140.70		13.94		169/5.625 5/08
			A-1A	47.70		2.04		21/1M LIBOR
20 May 99	John Deere Equipment	EL	A-1	\$167.30	Sr./Sub.	0.29		-7/3.5M LIBOR
			A-2	262.00		1.00		12/EDSF
			A-3	186.00		2.00		65/6.5 5/01
			A-4	146.10		3.05		70/6.5 5/02
20 May 99	MBNA Master Credit Card Trust 1999-D ^a	CC	A	\$425.00	Sr./Sub	7.00		19/1M LIBOR
			B	37.50		7.00		85/6.599 5/06
			C	37.50		7.00		140/6.875 5/06
20 May 99	New South Home Equity Loan Trust 1999-1	HE	A-1	\$105.70	AMBAC Wrap	0.50		9/1M LIBOR
			A-2	107.80		1.50		73/4.625 11/00
			A-3	104.40		3.00		85/6.50 5/02
			A-4	46.10		5.00		115/7.25 5/04
			A-5	50.70		7.09		145/6.875 5/06
			A-6	22.00		6.06		105/6.50 5/05
20 May 99	Yamaha 1999-1	AL	A	\$200.00	Sr./Sub.	5.00		25/LIBOR
			B	14.04		5.10		48/LIBOR

^a Salomon Smith Barney has acted as a manager and/or co-manager of debt issues of this issuer within the past three years.

ABS Asset-backed securities. AD Auto dealer floor plan. AIR Airplane leases. AL Auto loan. ALE Automobile lease. BL Boat loan. CA Controlled amortization. CC Credit card. CCA Cash collateral account. CHC Charge card. CIA Collateral invested amount. CON Consumer loans. DF Dealer floor plan. EL Equipment loan. FEL Farm equipment loan. FF Fed funds. Whole first and second liens. FR Franchise loan. HE Home equity. HIL Home Improvement loan. MB Mortgage-backed. Mezz. Mezzanine. MH Manufactured housing. ML Motorcycle Loans. N/A Not available. O Other. OC Overcollateralized. RIC Retail installment contracts. RV Recreational vehicle. BA Small business association loans. SL Student loan. TL Truck loan. Sub. Subordinate. UBA Utility bill allocations. WAL Weighted average life. WHL Wholesale inventory. WI When issued.

Source: MCM "Corporatwatch."