

***HEL and MH nominal  
spreads widened relative  
to credit cards in 1998.***

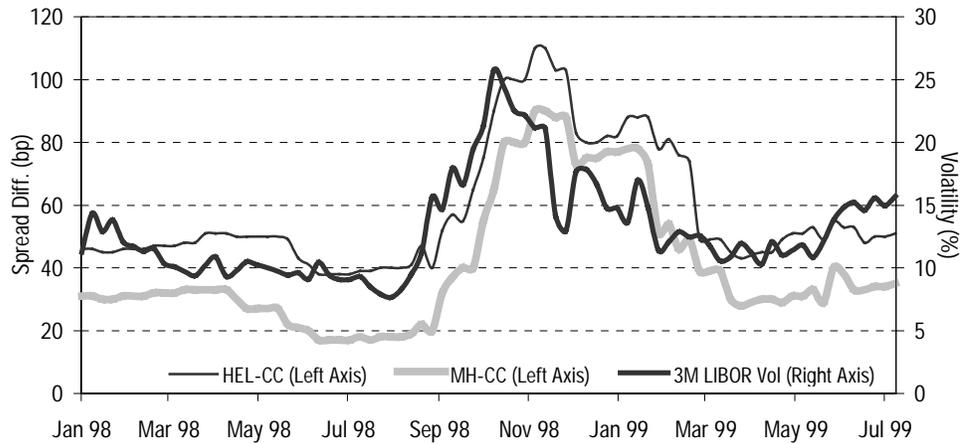
## Relative Value: Credit Card, HEL, and MH OASs

A good indication of relative value in the ABS market is a comparison of both spreads and OASs on triple-A-rated securities in the credit card and mortgage-related ABS sectors. We compare soft-bullet credit card bonds with home equity loan (HEL) and manufactured housing (MH) sequentials and with HEL NAS bonds.

After rising to historical highs during the fourth quarter of 1998, the difference in nominal spreads between mortgage-related ABS sequentials and credit card bullets declined sharply at the beginning of 1999, only to retrace some of the gains in the last few months. Figure 6 illustrates this behavior for five-year securities.

While credit card ABSs widened during the liquidity crisis of 1998, mortgage-related ABSs widened even more dramatically. Some of this discrepancy can be traced to the market's perception of diminished financial stability of HEL and MH issuers compared with credit card issuers. Another crucial factor was the exposure of mortgage products to prepayment risks. As the Treasuries rallied and interest-rate volatility soared, the option cost of mortgage-related ABSs increased, contributing to increasing nominal spreads. Figure 6 suggests a relationship between implied volatilities on the three-month LIBOR six months forward and the

**Figure 6. Nominal Spread Differences Between Five-Year Triple-A Rated Securities**



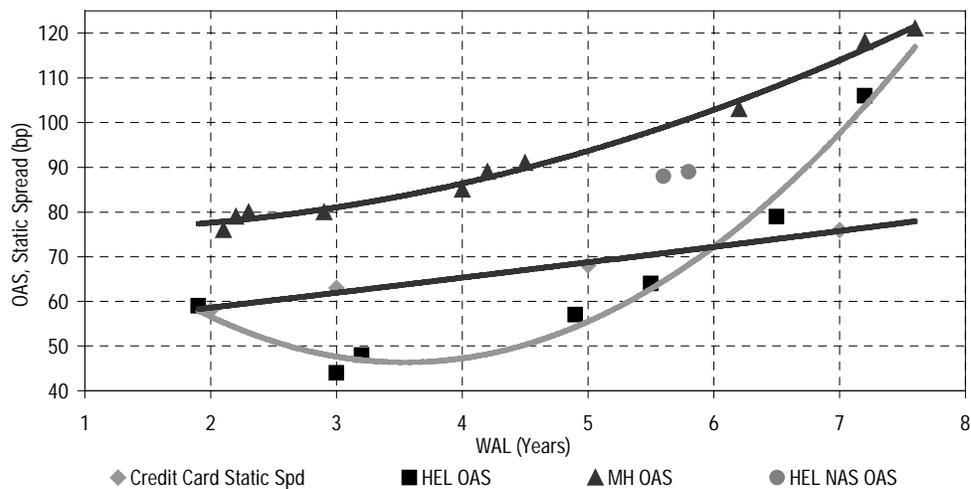
Source: Salomon Smith Barney.

differences in nominal spreads between credit card bullets and HEL and MH ABSs. Another indication of the role of prepayment risk in determining nominal spreads evident in Figure 6 is that HEL spreads have been consistently wider than MH spreads on securities of the same weighted average life (WAL), reflecting, in part, the greater sensitivity of HEL collateral to rate movements.

*OASs on HEL sequentials are not uniformly wider than credit cards, but OASs on MHs and HEL NASs are.*

Accounting for the prepayment option costs shows that, despite wider nominal spreads, HEL sequentials are not uniformly cheap compared to credit cards. At five years, for example, they are rich by about 12bp. In contrast, MH sequentials do appear uniformly cheap, since payments do not account fully for the gap between the MH and credit card ABSs. Figure 7 shows the option adjusted spreads (OASs) for HEL and MH sequentials, for two HEL NAS bonds, and the static spreads for credit cards, as a function of the bonds' WALs.<sup>1</sup>

**Figure 7. Credit Card Static Spreads versus OASs for HEL and MH Securities**



Source: Salomon Smith Barney.

<sup>1</sup> OASs are calculated to the Treasury model curve. For bullet securities, static spreads adjust for the richness or cheapness of benchmark Treasuries, by providing spreads relative to the Treasury model curve.

As shown in Figure 7, the short to intermediate HEL sequentials do not offer advantages relative to credit cards. One of the reasons for the high option costs of these bonds is structural. Virtually all recent HEL deals have at least one NAS bond. The prepayment protection of the NAS comes mostly at the expense of the sequentials that immediately precede it in the structure, or those whose principal is paid simultaneously with the paydown of the NAS bond. The benefit of the prepayment protection imparted to the NAS bond does not seem to be fully recognized in the market, since these bonds clearly appear cheap compared to the benchmark credit card issues, as well as HEL sequentials. At the WAL of 5.5 years, the difference is about 17bp. At the long end of the spectrum, HEL sequentials benefit from the fast baseline prepayment speeds of HEL collateral. Such speeds lead to relatively short collateral WALs, typically three to four years, leaving little extension risk for the longer bonds in the sequence. The added option cost of the cleanup call and the intricacies of its precise evaluation, however, are contributing factors to the spreads of these securities.<sup>2</sup>

*For MH, there are additional considerations.*

Although the OASs for MH securities are wider than the corresponding measures for HEL and credit card ABSs, by between 18bp and 40bp over the range shown, there are also other relative value considerations. In the HEL sector, the past few months have witnessed a major reshaping of the issuer landscape, with the removal of some of the weaker players giving market leadership to more financially stable companies. In contrast, in the MH sector, major restructuring has not been fully implemented and the credit standing of borrowers, particularly those purchasing repossessed units, remains a concern. As a result, there is likely more headline risk in MH and therefore, potentially, higher spread volatility.

*On Tuesday, July 20, Ron Thompson, Salomon Smith Barney's asset-backed research analyst following CDOs and other emerging asset classes, will host an investor call to discuss the current market and his outlook for CDOs. He will also discuss recent rating agency actions on CLOs, CLNs, and CDOs, and the implications for the CDO market. This call is part of a series of monthly investor calls and is intended to keep CDO investors informed of current issues and educate new investors in the market.*

*This month, we will feature two guest speakers: Greg Peters, Corporate Bond Research, on the High Yield markets; and Rod Morgan, Citibank Loan Research, on the Corporate Loan markets. These speakers will review recent trends in their markets and address their outlook for supply, defaults, and spreads.*

*Slides for the presentation will be available on SalomonDirect. Please contact your salesperson for details.*

<sup>2</sup> The longest HEL sequentials we considered include the provision of stepup in coupon if the cleanup call is not exercised. We therefore assumed that the cleanup call is exercised on all interest rate paths. See *Bond Market Roundup: Strategy*, March 5, 1999, for an evaluation of the option costs associated with cleanup calls.

**Figure 8. Percentage of ABS Floating-Rate and Fixed-Rate Issuance, 1998–1999YTD**

	1998	1999
Floating Rate	40.3%	44.4%
Fixed Rate	59.7	55.6

Source: Salomon Smith Barney.

**Figure 9. Year-to-Date ABS Issuance by Sector, 1998–1999 (Dollars in millions)**

	1998 (YTD)	Percentage	1999 (YTD)	Percentage
Auto Loans	\$18,818.3	18.8%	\$24,735.7	22.6%
Credit Cards	19,386.9	19.4	20,317.9	18.6
Home Equity Loans	39,523.1	39.5	24,611.0	22.5
Manufactured Housing	6,236.1	6.2	5,559.4	5.1
Student Loans	8,264.2	8.3	4,027.3	3.7
Other	7,884.2	7.9	30,154.0	27.6
<b>Total</b>	<b>\$100,112.9</b>	<b>100.0%</b>	<b>\$109,405.2</b>	<b>100.0%</b>

Source: MCM "Corporatwatch."

**Figure 10. Comparison of Quoted Spreads and Static Spreads**

	Avg. Life		Quoted Spread (bp/Curve)	Static Spread <sup>a</sup>	Difference
Three-Year Bullet	3.00 Yrs.		63bp	63bp	0bp
Five-Year Bullet	5.00		85	71	14
Wide Window Auto <sup>b</sup>	1.81		78	74	4
Short Auto <sup>c</sup>	1.06		L+15	55	NA
Wide Window HEL <sup>d</sup>	3.63		145	137	8
Short HEL <sup>e</sup>	1.16		L+30	70	NA

<sup>a</sup> Static spread of bullets incorporates the richness or cheapness of the on-the-run Treasury benchmarks. <sup>b</sup> Assumes collateral original WAM of 60 months and remaining WAM of 54 months, 9% coupon, 1.3% ABS prepayment speed. <sup>c</sup> Assumes collateral original WAM of 60 months and remaining WAM of 30 months, 9% coupon, 1.3% ABS prepayment speed. <sup>d</sup> Assumes collateral remaining WAM of 174 months, 11% coupon, 20% CPR prepayment speed. <sup>e</sup> 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 11. Fixed-Rate ABS Secondary-Market Spreads to Benchmark Treasuries**

		AAA					A				
		16 Jul 99	Spread Changes Over			1-Year SD of 1-Week	16 Jul 99	Spread Changes Over			1-Year SD of 1-Week
		Spread	1-Week	4-Weeks	52-Weeks	Sprd Chgs	Spread	1-Week	4 Weeks	52 Weeks	Sprd Chgs
2-Year	Retail Auto	70bp	3bp	3bp	30bp	5.6bp	87bp	0bp	0bp	29bp	9.2bp
	Credit Card	60	2	0	22	4.8	80	0	-3	25	5.6
	Home Equity	95	5	7	43	9.0	NA				
	Man. Housing	92	5	7	44	8.5	NA				
3-Year	Wholesale Auto	65	1	3	26	4.9	85	3	3	30	5.3
	Credit Card	65	2	3	26	4.8	85	3	3	30	5.3
	Home Equity	100	5	5	35	9.1	NA				
	Man. Housing	94	1	4	42	7.9	NA				
5-Year	Wholesale Auto	87	5	5	41	6.3	103	0	1	38	7.3
	Credit Card	87	5	5	41	6.3	103	0	1	38	7.3
	Home Equity	135	2	5	50	9.0	NA				
	Man. Housing	120	3	5	57	8.9	NA				
7-Year	Wholesale Auto	79	3	2	30	7.3	100	0	0	32	8.4
	Credit Card	79	3	2	30	7.3	100	0	0	32	8.4
	Home Equity	155	5	5	53	10.7	NA				
	Man. Housing	130	3	3	55	10.2	NA				
10-Year <sup>a</sup>	Wholesale Auto	104	4	4	41	8.4	130	0	0	47	8.9
	Credit Card	104	4	4	41	8.4	130	0	0	47	8.9
	Home Equity	175	0	0	55	13.0	NA				
	Man. Housing	160	5	5	65	11.5	NA				

Note: 5- and 10-Year spreads are quoted versus on-the-run Treasuries; 2-, 3-, and 7-Year spreads are quoted versus off-the-run Treasuries. <sup>a</sup> 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 12. Floating-Rate ABS Secondary-Market Discount Margins (Over One-Month LIBOR)**

		AAA					A				
		16 Jul 99	Spread Changes Over			1-Year SD	16 Jul 99	Spread Changes Over			1-Year SD
		Spread	1-Week	4 Weeks	52 Weeks	of 1-Week	Spread	1 Week	4 Weeks	52 Weeks	of 1-Week
						Sprd Chgs					Sprd Chgs
2-Year	Retail Auto	11bp	0bp	-1bp	8bp	1.9bp	31bp	0bp	-1bp	14bp	2.7bp
	Credit Card	10	1	0	7	1.8	29	0	-1	12	2.7
	Home Equity	29	2	3	21	3.6	84	0	0	56	7.2
3-Year	Wholesale Auto	13	0	0	8	1.9	32	0	0	10	2.6
	Credit Card	13	0	0	8	1.9	32	0	0	10	2.7
	Home Equity	31	2	3	18	3.4	92	0	0	61	7.8
5-Year	Wholesale Auto	19	1	1	10	2.1	39	1	0	13	3.1
	Credit Card	19	1	1	10	2.1	39	1	0	13	3.1
	Home Equity	30	0	0	15	3.7	95	0	0	62	8.5
7-Year	Wholesale Auto	23	1	1	11	2.5	45	0	0	15	4.0
	Credit Card	23	1	1	11	2.5	45	0	0	15	3.9
10-Year	Wholesale Auto	29	0	1	12	3.9	62	0	0	26	4.1
	Credit Card	29	0	1	12	3.9	62	0	0	26	4.1

LIBOR London Interbank Offered Rate. SD Standard deviation.

Source: Salomon Smith Barney.

**Figure 13. Representative Secondary Trading Levels**

Floating-Rate Issue	Avg. Life	DM	Price	Cap
MBNA 97-N A	1.3Yrs	8	99-31 +	None
FUSAM 95-2 A	2.7	13	100-14 +	None
CCIMT96.5 A	4.2	15	100-05	None
MBNA 96-B A	6.7	23	101-04	None
FUSAM 98-6 A	9.1	28	100-23	None

Fixed-Rate Issue	Coupon	Avg. Life	Spread	Price	Yield	Static Spread
ONYX 98-1 A	5.95	1.3@1.6 ABS Yrs	90bp	99-21	6.31%	86bp
PRAT 98-3 A3	5.88	1.1@1.5 ABS	70	99-29	6.04	72
CHAS 98-C A4	5.85	2.3@1.5 ABS	73	99-08 +	6.28	72
CCIMT 98-1 A	5.75	1.5	60	99-18 +	6.04	61
FUSAM 97-6 A	6.42	3.0	65	100-21	6.26	65
MBNA 97-I A	6.55	5.1	86	100-05 +	6.60	83
CCIMT 98-2 A	6.05	8.5	99/10yr	95-04 +	6.81	93

Source: Salomon Smith Barney.

**Figure 14. Floating-Rate CLO and CDO Indicative Discount Margins (Over Three-Month LIBOR)**

	US Collateral, Prime Quality CLO		High Yield Collateral CDO	
	Balance Sheet-Driven		Investor-Driven	
	3 Year	5 Year	7 Year	10 Year
AAA	22 bp	27 bp	55 bp	70 bp
AA	—	—	80	90
A	47	52	130	150
BBB	—	—	230	200
BB	—	—	550	570

CLO Collateralized loan obligation. CDO Collateralized debt obligation.

Source: Salomon Smith Barney.