

Option Cost of HEL and MH Pass-throughs

ABSs backed by home equity loans (HEL) and manufactured housing loans (MH) virtually always appear in a structured format that may include triple-A-rated sequentials, NASs, PACs, and TACs, as well as lower-rated support classes. A question has often been raised by investors, and especially issuers, about a suitable way to compare valuation parameters of agency pass-throughs and the underlying collateral in mortgage-related ABSs. In this report, we provide an answer by creating hypothetical HEL and MH pass-throughs and comparing them with combinations of 15- and 30-year FNMA pass-throughs. Market participants may find the results somewhat surprising, since, under certain circumstances, HEL option costs can be significantly higher than those of comparable agencies, and HEL convexities significantly more negative.

Our HEL pass-through is created by using the collateral from EquiCredit 1999-3 and directing all principal cash flows to the bondholder. The coupon on the bond is set at 7%, which is close to the FNMA 15-year current-coupon yield of 7.024%. For the purpose of this analysis, collateral credit is assumed to be irrelevant other than in its impact on prepayments. The HEL pass-through is compared with a duration- and OAS-matched portfolio consisting of two 7% FNMA 15-year pass-throughs priced at current market levels.⁵ Results for three different interest-rate scenarios are shown in Figure 13.

⁵ The two FNMA 15-year securities are the 7% TBAs and the 7s of 1995. We use FNMA 15-year collateral exclusively because it would be impossible to match durations with 30-year collateral of recent vintage.

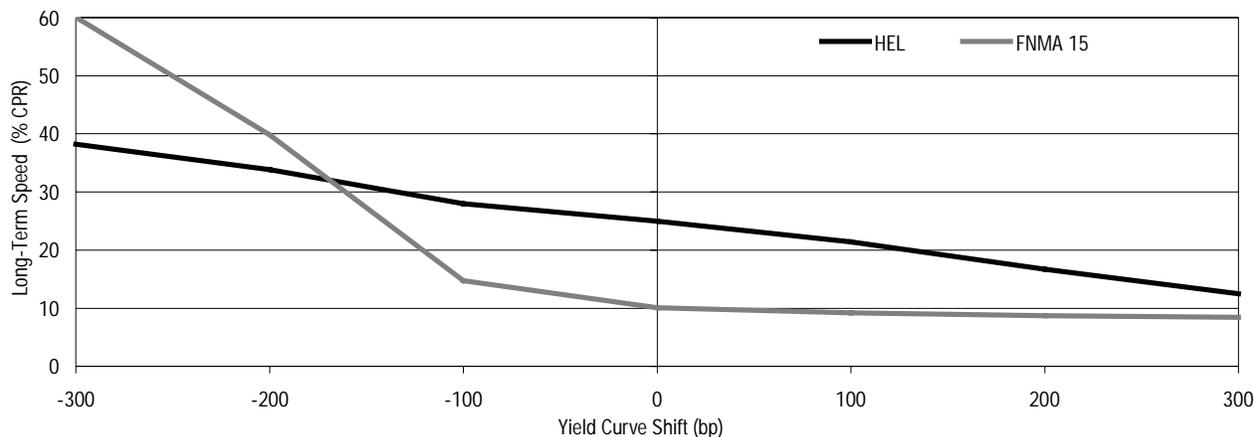
Figure 13. Comparison of HEL and FNMA 15-Year Pass-throughs

YC Shift	OAS		Eff. Dur.		Option Cost		Convexity		Yield		WAL	
	FNMA 15	HEL	FNMA 15	HEL	FNMA 15	HEL	FNMA 15	HEL	FNMA 15	HEL	FNMA 15	HEI
-100bp	66 bp	66 bp	1.74 yr	2.26 yr	41 bp	25 bp	-1.84	-0.79	6.18 %	5.99 %	3.9 yr	2.9 yr
0	66	66	3.03	3.03	18	32	-0.62	-0.62	7.01	7.10	4.5	3.2
+100	66	66	3.43	3.72	9	40	-0.10	-0.53	7.93	8.27	4.7	3.8

OASs are to the Treasury model curve.

Source: Salomon Smith Barney.

Figure 14. Projected Long-Term Speeds for HEL and FNMA 15-Year Collateral Under Parallel Yield Curve Shifts



Source: Salomon Smith Barney.

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In the base case, where most of the collateral is nearly at-money, the option cost of the HEL pass-through is 14bp higher than that of the FNMA 15 portfolio. Equivalently, the yield curve margin (zero-volatility OAS, or Z-spread) of the HEL bond must be 14bp higher than that of the FNMA combination to yield the same OAS. **This difference is primarily due to the significantly higher extension risk of HEL collateral that is not in-the-money, as interest-rate increases can lead to a suppression of credit-driven refinancings.** This situation is illustrated in Figure 16, which shows projected long-term prepayment speeds for different parallel shifts of the yield curve. Rate increases from the base case clearly have a minimal impact on FNMA 15-year prepayments, but can lead to significant prepayment slowdowns of the HEL collateral.

but in a rate rally of 100bp, the agency option cost is higher.

In a rate rally of 100bp from the base case, the greater refinancing propensity of FNMA 15 collateral becomes dominant, resulting in higher agency option cost. A 100bp rate selloff, on the other hand, leaves the FNMA 15 collateral with very low rate sensitivity, while further enhancing the extension risk of the HEL collateral and thus increasing the option cost.⁶ The HEL bond now requires a yield curve margin wider by 31bp to give the same OAS.

⁶ See *Bond Market Roundup: Strategy*, September 11, 1998.

Figure 15. Comparison of MH and FNMA 30-Year Pass-throughs

YC Shift	OAS		Eff. Dur.		Option Cost		Convexity		Yield		WAL	
	FNMA 30	MH	FNMA 30	MH	FNMA 30	MH	FNMA 30	MH	FNMA 30	MH	FNMA 30	MH
-100bp	58 bp	58 bp	2.23 yr	3.98 yr	77 bp	18 bp	-2.57	-0.49	6.51 %	6.00 %	4.7 yr	6.2 yr
0	58	58	4.42	4.42	48	14	-1.43	-0.07	7.41	7.00	8.9	6.8
+100	58	58	5.46	4.60	32	12	-0.38	0.13	8.27	7.99	9.7	7.1

OAS are to the Treasury model curve. Source: Salomon Smith Barney.

Figure 16. Percentage of ABS Floating-Rate and Fixed-Rate Issuance, 1998–1999 Year-to-Date

	1998	1999
Floating-Rate	40.3%	48.9%
Fixed-Rate	59.7	51.1

Source: Salomon Smith Barney.

Figure 17. Comparison of Quoted Spreads and Static Spreads

	Avg. Life	Quoted Spread (bp/Curve)	Static Spread ^a	Difference
Three-Year Bullet	3.00Yrs	65 bp	64 bp	1 bp
Five-Year Bullet	5.00	74	68	6
Wide Window Auto ^b	1.81	68	69	-1
Short Auto ^c	1.06	L+20	77	NA
Wide Window HEL ^d	3.63	125	114	11
Short HEL ^e	1.16	L+40	89	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.

A similar comparison can be carried out between MH loans and conforming loans. The MH pass-through is created by using the collateral that backs Green Tree 1999-5 and directing all principal payments to the bondholder. Because of the longer duration of the MH pass-through compared to the HEL pass-through, the MH security is matched by duration and OAS to a combination of 30-year FNMA pass-throughs consisting of 7% and 7.5% TBAs. The coupon on the MH bond is set to 7.5%, close to the FNMA 30-year current-coupon yield of 7.464%. As in the previous example, durations and OASs are computed using the market values of the FNMA securities. Results are shown in Figure 17.

In all cases, the option cost of the MH pass-through is significantly lower than that of the FNMA portfolio.

In contrast to HEL loans, MH loans do not display greater extension risk than conforming loans, leading to qualitatively similar changes in the pricing parameters with shifts of the yield curve. In all cases, the option cost of the MH pass-through is significantly *lower* than that of the FNMA portfolio, allowing significantly tighter Z-spreads to lead to the same OASs. In the base case, for example, the difference is 34bp. Therefore, at identical yield curve margins, MH pass-throughs are cheap relative to conforming-loan pass-throughs, but HEL pass-throughs may be rich or cheap, depending on the refinancing incentive to which borrowers are exposed.

Figure 18. Fixed-Rate ABS Secondary-Market Spreads to Benchmark Treasuries

		AAA					A				
		10 Dec 99	Spread Changes Over			1-Year SD	10 Dec 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	68bp	0bp	0bp	-17bp	3.7bp	105bp	0bp	0bp	-45bp	6.0bp
	Credit Card	60	0	-3	-2	3.2	80	0	-5	-7	3.7
	Home Equity	95	0	0	-25	6.6	NA				
	Man. Housing	90	0	0	-30	6.9	NA				
3-Year	Wholesale Auto	63	-1	-4	-4	3.3	85	0	-7	-7	3.6
	Credit Card	63	-1	-4	-4	3.3	85	0	-7	-7	3.6
	Home Equity	105	0	0	-25	6.7	NA				
	Man. Housing	100	0	0	-30	6.9	NA				
5-Year	Wholesale Auto	74	0	-2	-6	4.3	97	0	-4	-13	5.7
	Credit Card	74	0	-2	-6	4.3	97	0	-4	-13	5.7
	Home Equity	125	0	0	-35	6.3	NA				
	Man. Housing	120	0	0	-35	6.6	NA				
7-Year	Wholesale Auto	67	1	-5	-18	4.8	90	0	-8	-25	6.0
	Credit Card	67	1	-5	-18	4.8	90	0	-8	-25	6.0
	Home Equity	140	0	-5	-30	6.2	NA				
	Man. Housing	132	0	-3	-38	7.4	NA				
10-Year ^a	Wholesale Auto	94	0	-6	-6	5.4	119	0	-8	-16	6.7
	Credit Card	94	0	-6	-6	5.5	119	0	-8	-16	6.7
	Home Equity	170	0	-5	-20	8.3	NA				
	Man. Housing	160	0	-5	-20	7.0	NA				

Five- and ten-year spreads are quoted versus on-the-run Treasuries; two-, three-, and seven-year spreads are quoted versus off-the-run Treasuries.

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

Source: Salomon Smith Barney.

Figure 19. Floating-Rate ABS Secondary-Market Discount Margins (Over One-Month LIBOR)

		AAA					A				
		10 Dec 99	Spread Changes Over			1-Year SD	10 Dec 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	12bp	0bp	-1bp	0bp	1.3bp	35bp	0bp	-3bp	0bp	1.8bp
	Credit Card	12	0	-1	0	1.1	35	0	-3	0	1.9
	Home Equity	35	0	0	-10	1.9	90	0	0	-20	2.7
3-Year	Wholesale Auto	14	0	-2	-3	1.0	38	0	-3	-4	1.9
	Credit Card	14	0	-2	-3	1.0	38	0	-3	-4	2.1
	Home Equity	36	0	0	-11	1.9	95	0	0	-25	2.7
5-Year	Wholesale Auto	17	0	-2	-5	1.0	42	0	-3	-8	2.1
	Credit Card	17	0	-2	-5	1.0	42	0	-3	-8	2.1
	Home Equity	43	0	0	-12	2.5	105	0	0	-25	3.1
7-Year	Wholesale Auto	19.5	0	-3.5	-6.5	1.2	45	0	-5	-12	2.0
	Credit Card	19.5	0	-3.5	-6.5	1.2	45	0	-5	-12	1.9
10-Year	Wholesale Auto	27	0	-5	-8	1.4	55	0	-7	-15	1.7
	Credit Card	27	0	-5	-8	1.4	55	0	-7	-15	1.7

LIBOR London Interbank Offered Rate. SD Standard deviation.

Source: Salomon Smith Barney.

Figure 20. Representative Secondary Trading Levels

Floating-Rate Issue		Avg. Life	DM	Price		Cap
MBNA 97-N A		1.0Yrs	7	99-31 +		None
FUSAM 95-2 A		2.3	12	100-08		None
CCIMT96.5 A		3.8	14	99-28		None
MBNA 96-B A		6.3	19	100-11		None
FUSAM 98-6 A		8.7	24	99-15		None
Fixed-Rate Issue	Coupon	Avg. Life	Spread	Price	Yield	Static Spread
ONYX 98-1 A	5.95%	1.1@1.6 ABSYrs	85bp	99-08	6.72%	83bp
CHAS 98-C A4	5.85	1.9@1.5 ABS	64	98-27	6.59	64
CCIMT 98-1 A	5.75	1.1	60	99-08	6.46	60
FUSAM 97-6 A	6.42	2.6	64	99-24	6.61	63
MBNA 97-I A	6.55	4.7	74	99-05	6.86	79
CCIMT 98-2 A	6.05	8.1	90/10yr	93-00 +	7.20	97

Source: Salomon Smith Barney.

Figure 21. 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	25 bp	30 bp	55 bp	60 bp
AA	—	—	80	85
A	65	75	130	140
BBB	—	—	235	250
BB	—	—	575	600

CLO Collateralized loan obligation. CDO Collateralized debt obligation.

Source: Salomon Smith Barney.

Figure 22. Recent Issuance

Date	Issuer	Asset Type	Class	Size (Mil.)	Credit Enhancement	WAL (Yrs)	Pricing Speed	Spread
8-Dec-99	Heller Equipment Asset Receivables Trust 1999-2	EL	A-1	\$93.31				2/4M LIBOR
			A-2	77.43				27/SYNTH LIBOR
			A-3	105.36				77/6.125 12/01
			A-4	67.20				86/5.375 6/03
			B	4.57				100/6.375 9/01
7-Dec-99	Discover Card 1999-6	CC	A	\$750.00				83/5.875 11/04
			B	39.47				106/5.875 11/04
3-Dec-99	Irwin HELT 99-3	HE	A-1	\$130.00	Full AMBAC Wrap			140/5.25 8/03
			A-2	70.00				155/5.25 8/03
			A-3	50.00				37/1M LIBOR
3-Dec-99	Provident ^a	ALE	A-1	\$62.90				32/SYNTH LIBOR
			A-2	295.60				106/4.25 11/03
			A-3	166.40				118/5.875 11/05
			B	24.60				180/5.875 2/04
1 Dec 99	Centex Home Equity Loan 1999-4 ^a	HE	A-1	\$68.00	100% MBIA Wrap			40/SYNTH LIBOR
			A-2	20.00				102/6.125 12/01
			A-3	39.00				117/5.625 12/02
			A-4	30.00				139/7.50 2/05
			A-5	19.85				167/6.625 5/07
			A-6	19.66				125/6.875 5/06
			A-7	108.50				2.62
23-Nov-99	Fidelity Equipment Lease Trust 1999-2	EL	A-1	\$27.88				10/6M LIBOR
			A-2	16.03				45/SYNTH LIBOR
			A-3	43.81				108/5.875 9/02
			B	7.48				158/6.625 4/02
19 Nov 99	C-BASS 99-CB5	HE	A-1	\$120.50	MBIA Wrap			140/5.375 6/03
			A-2	58.60				45/1M LIBOR
19 Nov 99	New South HELT	HE	A-1	\$88.40	MBIA Wrap			24/1M LIBOR
			A-2	15.60				107/6.875 11/01
			A-3	48.10				125/5.75 11/02
			A-4	24.30				145/7.875 11/04
			A-5	19.90				160/6.125 8/07
			A-6	22.50				141/5.625 2/06
19 Nov 99	GreenPoint 1999-5 ^a	MH	A-1	\$113.00				40/EDSF
			A-2	112.00				108/5.5 2/03
			A-3	40.00				123/7.5 2/05
			A-4	132.00				160/5.5 5/09
			A-5	24.20				185/5.5 5/09
18 Nov 99	Orix Credit Alliance 1999-A	EL	A-1	\$56.06	Sr./Sub.			5/4M LIBOR
			A-2	38.50				39/SYNTH LIBOR
			A-3	73.41				93/5.875 11/01
			A-4	27.10				100/5.875 9/02
			B	6.16				145/6.375 9/01
			C	3.08				200/6.375 9/01

^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."