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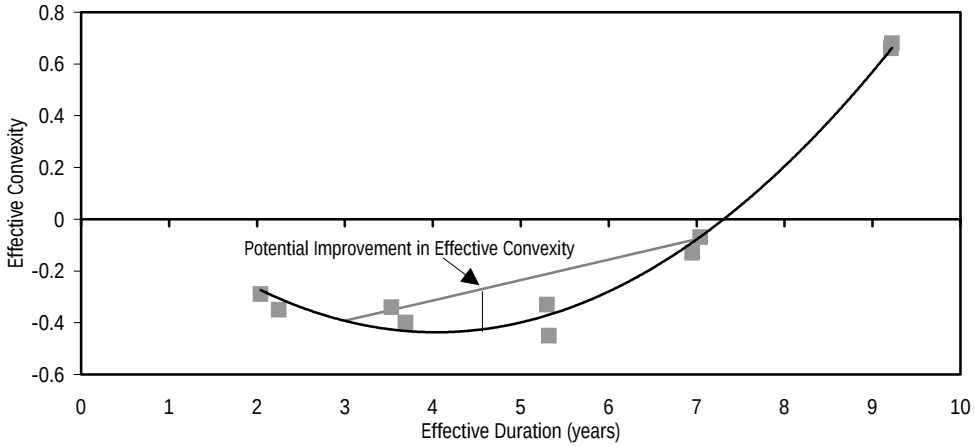
Improving The Convexity of MH Sequentials

While some investors may anticipate that interest rates will remain range-bound for at least the near term, there still appears to be an overall preference among market participants for cash flows that are not particularly vulnerable to movements in interest rates. This preference has helped motivate a resurgence in demand for manufactured housing (MH) sequentials, which enjoy attractive convexity characteristics compared with most other types of mortgage-related securities. But even within the MH sector, barbell trades can create effective duration-neutral positions with higher effective convexity than the sequentials alone. As with most convexity-enhancing strategies, reducing the exposure to interest rates can come at the expense of diminished returns in unchanged interest rate scenarios. Although such decreases in return can often be kept to a few basis points, it is sometimes possible to win on all fronts: increasing convexity, improving OAS, and achieving higher expected returns under virtually all interest rate assumptions.

Effective convexity is minimum around the five-year duration.

Figure 13 hows effective convexity as a function of effective duration for the triple-A rated sequential bonds from GT 1999-1 and GT 1999-2. The curve exhibits a minimum around five years, rising steeply as durations extend and more slowly as durations shorten. The relatively higher stability of cash flows for short-duration tranches is the result of several factors, including: (1) the smaller width of the distribution of interest rates in the OAS simulation early after settlement; (2) limited average life shortening potential for short bonds in a sequential pay structure; and (3) the lower sensitivity to interest rate-related refinancing of unseasoned collateral (both deals are unseasoned). The sharp increase in convexities when durations exceed about seven years is due primarily to the stabilizing effect of a long sequence of interest payments prior to principal payments on the bond.

Figure 13. GT 1999-1 and GT 1999-2 — Effective Convexity of Sequentials Versus Effective Duration



Source: Salomon Smith Barney.

The shape of the scatter-plot suggests that a barbell consisting of short- and long-duration MH bonds will have superior convexity characteristics compared with an intermediate sequential. And, in fact, the barbell will have these superior characteristics, since the convexity of a combination of bonds is simply a linear combination of the convexities of its constituents, lying between the convexities of the shorter and longer bonds.

A barbell can improve convexity without significant give-up in OAS or unchanged-rate returns.

Figure 14 compares OASs, effective convexities, and one-year expected total rates of return under different interest rate scenarios for three sets of market value- and duration-matched positions. In all cases, the barbell position has higher (less negative) convexity which leads to enhanced returns in interest rate rallies and selloffs. The differences can be significant, ranging from 26bp to 50bp in the +/- 200bp scenarios. The tradeoff in the first two cases is a modest giveup in OAS and, in the first case, a 2bp decrease in the one-year return, as well. In the third case, however, the barbell position is superior to the intermediate bond in all pricing parameters.

Figure 14.. GT99.1 and GT99.2 Barbell Position Versus Intermediate Sequential

				Portfolio			12-Month Return for Various Rate Shifts						
		Eff.	Mkt.		Eff.	Eff.							
Security (GT)	Price	Dur.	Val.	OAS	Dur.	Cnvx.	-200 bp	-100 bp	-50 bp	0 bp	+50 bp	+100 bp	+200 bp
99.1 A3	$99-20	2.04 Yrs	3,423	96 bp	5.30 Yrs	-0.15	13.66 %	10.87 %	8.92 %	6.72 %	4.44 %	2.11 %	-2.57 %
99.1 A6	98-6	7.04	6,401										
99.1 A5	98-2	5.30	9,824	103	5.30	-0.33	13.40	10.84	8.93	6.74	4.42	2.01	-2.94
Diff.			0	-7	0	0.18	26bp bp	3 bp	-1 bp	-2 bp	2 bp	10 bp	37 bp
99.2 A2	100-3	2.25	3,498	96	5.32	-0.21	13.68 %	10.90 %	8.95 %	6.73 %	4.43 %	2.07 %	-2.67 %
99.2 A5	100-1+	6.95	6,534										
99.2 A4	100-8+	5.32	10,032	100	5.32	-0.45	13.26	10.79	8.91	6.69	4.33	1.88	-3.17
Diff.			0	-4	0	0.24	42 bp	11 bp	4 bp	4 bp	10 bp	19 bp	50 bp
99.2 A2	100-3	2.25	6,961	81	3.69	-0.28	10.43 %	8.89 %	7.74 %	6.35 %	4.88 %	3.37 %	0.27 %
99.2 A5	100-1+	6.95	3,051										
99.2 A3	100-2	3.69	10,011	77	3.69	-0.40	10.13	8.77	7.69	6.33	4.85	3.30	0.00
Diff.			0	5	0	0.12	30 bp	12 bp	5 bp	2 bp	3 bp	7 bp	27 bp

OAS to Treasury model curve. Returns computed assuming constant OAS. Closing prices of April 28, 1999.
Source: Salomon Smith Barney.

Our examples do not include the longest triple-A cash flow in each deal (A7 in GT 1999-1 and A6 in GT 1999-2). While these securities may offer appreciable improvement in convexity, as Figure 13, suggests they carry the additional risk of **cleanup call** which generally *reduces* the OASs on long bonds and may have a material impact on the comparisons.[17] In addition, our analysis does not consider the **stepdown test**, assuming that it is passed each month. Failure to pass the test would lead to an accelerated prepayment of intermediate and long senior tranches with implications for the comparisons in Figure 14.

Figure 15. Percentage of ABS Floating-Rate and Fixed-Rate Issuance, 1998–1999YTD

	1998	1999
Floating Rate	40.3%	34.8%
Fixed Rate	59.7	65.2

Source: Salomon Smith Barney.

Figure 16. Year-to-Date ABS Issuance by Sector, 1998–1999 (Dollars in Millions)

	1998 (YTD)	Pct.	1999 (YTD)	Pct.
Auto Loans	$10,170.7	19.1%	$16,174.3	24.4%
Credit Cards	10,551.8	19.8	12,096.4	18.2
Home Equity Loans	19,479.2	36.6	15,042.9	22.7
Manufactured Housing	3,874.6	7.3	3,358.2	5.1
Student Loans	4,638.9	8.7	2,081.6	3.1
Other	4,447.9	8.4	17,531.7	26.4
Total	**$53,163.1**	**100.0%**	**$66,285.1**	**100.0%**

Source: MCM "Corporatewatch."

Figure 17. Comparison of Quoted Spreads and Static Spreads

	Avg. Life (Yrs)	Quoted Spread (bp/Curve)	Static Spread[a] (bp)	Difference (bp)
Three-Year Bullet	3.00Yrs	54 bp	53 bp	1 bp
Five-Year Bullet	5.00	69	62	7
Wide Window Auto[b]	1.81	62	58	4
Short Auto[c]	1.06	L+6	33	NA
Wide Window HEL[d]	3.63	120	110	10
Short HEL[e]	1.16	L+30	58	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.

[17] See *Bond Market Roundup: Strategy*, March 5, 1999, for an economic valuation of the cleanup call.

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

		AAA					A				
		30 Apr 99 Spread	Spread Changes Over 1-Week	4-Week	52-Week	1-Year SD of 1-Week Sprd Chgs	30 Apr 99 Spread	Spread Changes Over 1-Week	4-Week	52-Week	1-Year SD of 1-Week Sprd Chgs
2-Year	Retail Auto	54 bp	-3 bp	1 bp	20 bp	5.3 bp	90 bp	0 bp	0 bp	35 bp	9.1 bp
	Credit Card	52	-1	-1	20	4.7	78	0	0	26	5.4
	Home Equity	85	0	0	32	8.8	NA				
	Man. Housing	80	0	3	27	8.1	NA				
3-Year	Wholesale Auto	55	-2	0	21	4.8	80	0	0	27	5.2
	Credit Card	55	-2	0	21	4.7	80	0	0	27	5.2
	Home Equity	90	0	1	25	8.9	NA				
	Man. Housing	85	0	5	30	7.7	NA				
5-Year	Wholesale Auto	69	-2	-2	29	6.0	96	0	0	29	7.0
	Credit Card	69	-2	-2	29	6.1	96	0	0	29	7.0
	Home Equity	120	0	5	30	8.8	NA				
	Man. Housing	100	0	0	33	8.6	NA				
7-Year	Wholesale Auto	65	0	-2	19	7.2	92	0	0	22	8.3
	Credit Card	65	0	-2	19	7.2	92	0	0	22	8.3
	Home Equity	145	0	0	38	10.5	NA				
	Man. Housing	125	0	0	42	10.0	NA				
10-Year	Wholesale Auto	92	0	0	35	8.1	118	0	0	42	8.7
	Credit Card	92	0	0	35	8.1	118	0	0	42	8.7
	Home Equity	170	0	0	45	13.0	NA				
	Man. Housing	145	0	0	45	11.2	NA				

NA Not available. SD Standard deviation.

Source: Salomon Smith Barney.

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

		AAA					A				
		30 Apr 99 Spread	Spread Changes Over 1-Week	4-Week	52-Week	1-Year SD of 1-Week Sprd Chgs	30 Apr 99 Spread	Spread Changes Over 1-Week	4-Week	52-Week	1-Year SD of 1-Week Sprd Chgs
2-Year	Retail Auto	7 bp	0 bp	0 bp	3 bp	1.9 bp	29 bp	0 bp	0 bp	9 bp	2.7 bp
	Credit Card	7	0	0	3	1.8	27	0	-2	7	2.7
	Home Equity	25	0	0	12	3.6	100	0	0	65	6.9
3-Year	Wholesale Auto	9	-1	-1	4	1.9	31	0	0	8	2.6
	Credit Card	9	-1	-1	4	1.9	31	0	0	8	2.8
	Home Equity	28	0	-1	14	3.4	105	0	0	68	7.5
5-Year	Wholesale Auto	14	0	0	5	2.0	36	-3	-3	7	3.1
	Credit Card	14	0	0	5	2.0	36	0	-3	7	3.1
	Home Equity	33	0	0	17	3.6	110	0	0	74	8.2
7-Year	Wholesale Auto	17	0	0	5	2.4	44	0	0	11	3.9
	Credit Card	17	0	0	5	2.4	42	0	-2	9	3.9
10-Year	Wholesale Auto	23	0	0	6	3.9	57	0	0	19	4.1
	Credit Card	23	0	0	6	3.9	57	0	0	19	4.1

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	1.5Yrs	4.0	100-00+	None
FUSAM 95-2 A	2.9	9.0	100-15	None
CCIMT96.5 A	4.4	12.5	100-06	None
MBNA 96-B A	6.9	16.0	101-06+	None
FUSAM 98-6 A	9.3	24.0	100-25	None

Fixed-Rate Issue	Coupon	Avg. Life	Spread	Price	Yield	Static Spread
ONYX 98-1 A	5.95	1.4@1.6 ABSYrs	78bp	100-09+	5.78%	81bp
PRAT 98-3 A3	5.88	1.3@1.5 ABS	54	100-17	5.52	55
CHAS 98-C A4	5.85	2.5@1.5 ABS	57	100-20	5.64	57
CCIMT 98-1 A	5.75	1.7	50	100-11+	5.51	50
FUSAM 97-6 A	6.42	3.2	54	102-13	5.66	55
MBNA 97-I A	6.55	5.3	70	103-05	5.92	69
CCIMT 98-2 A	6.05	8.7	87	99-05	6.17	81

Source: Salomon Smith Barney.

Figure 21. Recent Issuance

Date	Issuer	Asset Type	Class	Size (Mil.)	Credit Enhancement	WAL (Yrs)	Pricing Speed	Spread
29 Apr 99	Premier 1999-2 [a]	AL	A-2	$490.00		1.00	1.5% ABS	EDSF+6
			A-3	520.00		2.00		54/6.25 4/01
			A-4	344.00		3.12		57/6.25 6/02
22 Apr 99	Empire Funding Home Loan Owner Trust 1999-1	HE	A-1	$59.75		0.78		25/1M LIBOR
			A-2	35.03		2.00		120/6.25 8/01
			A-3	29.16		3.00		130/6.625 4/02
			A-4	30.17		5.00		150/7.25 5/04
			A-5	15.89		10.08		210/5.625 5/08
			M-1	28.13		7.59		265/5.625 5/08
			M-2	16.25		7.59		375/5.625 5/08
			B-1	19.38		7.59		725/5.625 5/08
21 Apr 99	First Sierra 1999-1	EL	A-1	$70.64	Mezz./Sub.	0.46		-6/SYN LIBOR
			A-2	57.22		1.24		62/5.375 7/00
			A-3	48.03		1.99		65/6.25 4/01
			A-4	84.06		3.31		75/6.25 8/02
21 Apr 99	First USA Credit Card Master Trust 1999-3 [a]	CC	A	$700.00				LIBOR+15
			B	54.00				LIBOR+36
21 Apr 99	Mellon Auto Grantor Trust 1999-1	ALE	A	$307.74	Sr./Sub.	1.54		59/4.625 11/08
			B	9.52		1.54		90/TSY
20 Apr 99	Discover Card Master Trust 1999-4	CC	A	$850.00		3.05		62/6.50 5/02
			B	44.70		3.14		85/5.8944
20 Apr 99	Freddie Mac (Option One)	HE		$509.00	Agency Wrap	2.71		10/1M LIBOR
20 Apr 99	Option One 1999-2	HE	A-1	$74.00	100% FSA Wrap	0.83		5.45
			A-2	50.00		2.05		80/5.625 5/01
			A-3	24.00		3.05		90/6.50 5/02
			A-4	52.00		5.03		120/7.25 5/04
			A-5	15.80		7.24		150/7.00 7/06
			A-6	19.00		6.02		110/6.50 5/05
			A-7	38.40		3.11		135/6.50 5/02
			A-8	94.80		2.76		LIBOR+28

[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 "Corporatewatch."