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Exploiting Inefficiencies in the Mortgage Derivatives Market

In the January 17, 1997 issue of *Bond Market Roundup: Strategy*, we pointed out that although the efficiency of the mortgage derivatives market had improved significantly over the past 18 months, there were still opportunities to exploit mispricings involving Trust IOs and POs backed by collateral of the same coupon, but originated at different times. As shown in Figure 4, for the 7.0%, 7.5%, and 8.0% conventional Trusts, IOs backed by newly originated pass-throughs are cheaper (offering wider OASs at 100% of the Salomon Brothers prepayment model) than their counterparts backed by moderately seasoned collateral (the reverse is true for POs).

Figure 4. Comparison of IO/PO Trusts With Underlying Collateral of the Same Net Coupon but Differing Vintage, 30 Jan 97

	Underlying Collateral			OAS @ 100% SB Model		Implied Prepay Model	
IO/PO Trust	Net Coupon	WAM	Age	IO	PO	SB Model Multiplier	OAS
FNMA TR240	7.0%	25.8Yrs.	42Mo.	-34bp	82bp	93.6%	44bp
FHLMC PC177	7.0	29.0	9	85	27	103.7	47
FNMA TR252	7.5%	25.5Yrs.	45Mo.	10bp	58bp	97.6%	43bp
FNMA TR272	7.5	29.1	9	142	-2	108.1	44
FNMA TR237	8.0%	24.9Yrs.	52Mo.	75bp	34bp	101.9%	46bp
FHLMC PC179	8.0	29.4	5	220	-31	112.4	43

Source: Salomon Brothers Inc.

New IOs can be combined with moderately seasoned POs to create cheap pass-through substitutes.

We believe that the market is assuming prepayment rates that are too fast for the newly originated issues and too slow for the moderately seasoned issues, as suggested by the percentages of the Salomon Brothers prepayment model that are necessary to produce the same OAS for both the IO and PO in each Trust (see Figure 4). If our prepayment projections are accurate, these inefficiencies can be exploited by combining new IOs with moderately seasoned POs to create cheap pass-through substitutes.

For example, in Figure 5 we show a combination of FNMA Trust 272 IOs and FNMA Trust 252 POs versus TBA FNMA 7.5s. The combination offers an OAS pickup of 33bp and a large convexity advantage. The convexity advantage stems from the shorter effective duration of the moderately seasoned PO relative to its new counterpart. Consequently, more of the moderately seasoned PO than the new IO (on a par amount basis) is required in order for the combination to match the effective duration of the pass-through. The downside of this result is that the one-year total returns of the combination are projected to lag those of the pass-through in the unchanged and -50bp interest-rate-move scenarios.

Figure 5. OAS and Projected Return Advantages of a New IO/Moderately Seasoned PO Combination Versus FNMA 7.5s, 30 Jan 97

	Par Value	Market Value			Projected One-Year Total Returns						
Issue	($MM)	($MM)	Price	OAS	-150bp	-100bp	50bp	0bp	50bp	100bp	150bp
FNMA TR272 IO	17458	6046	$34.55	134bp	-35.41%	-17.44%	0.43%	11.41%	18.34%	23.00%	25.90%
FNMA TR252 PO	20808	13954	67.06	56	32.54	23.14	12.82	5.90	0.54	-4.00	-7.96
Combination		20000		79bp	12.00%	10.87%	9.08%	7.57%	5.92%	4.16%	2.28%
FNMA 7.5s	19994	20000	$99.78	46bp	11.20%	10.74%	9.54%	7.73%	5.63%	3.31%	0.87%
Advantage				**33bp**	**0.80%**	**0.13%**	**-0.46%**	**-0.16%**	**0.30%**	**0.85%**	**1.40%**

Source: Salomon Brothers Inc.

Figure 6. Risk Profile: New IO/Moderately Seasoned PO Combination Versus FNMA 7.5s, 30 Jan 97

Issue	Market Value ($MM)	Eff. Dur.	Partial Durations 1 yr.	2 yr.	3 yr.	5 yr.	10 yr.	30 yr.	Eff. Cnvx.	Vol. Dur.	Prepay Dur.
FNMA TR272 IO	6046	-17.4	1.3	1.3	1.7	3.0	-20.1	-4.1	-12.5	1.83	0.493
FNMA TR252 PO	13954	13.8	-0.4	0.0	0.0	0.2	11.7	2.1	6.2	-0.54	-0.270
Combination	20000	4.4	0.1	0.4	0.5	1.1	2.1	0.3	0.6	0.18	-0.039
FNMA 7.5s	20000	4.4	0.1	0.3	0.5	1.2	1.9	0.5	-1.1	0.30	0.004
Difference		**0.0**	**0.0**	**0.1**	**0.0**	**-0.1**	**0.2**	**-0.2**	**1.7**	**-0.12**	**-0.044**

Source: Salomon Brothers Inc.

Structured IOs and POs can be substituted for their Trust counterparts to improve projected returns.

Can we improve on this result? Structured IOs and POs often trade at discounts to their theoretical values relative to Trust product. One way to improve the projected returns of a Trust IO/PO combination is to substitute cheaper structured products. In Figure 7 we show the above combination except that FNMA 93-146 G and FNMA 93-200 B structured POs (both backed by combinations of FNMA Trust 218 and 221 moderately seasoned 7.5% POs) have been substituted for the FNMA Trust 252 POs. The OAS advantage of the combination nearly doubles to 63bp and the projected one-year total-return advantages are all positive.

Has the introduction of structured POs significantly altered the risk profile of the trade? Figure 8 suggests not; the partial durations of the combination are all still fairly close to those of the pass-through, while the match of volatility and prepayment durations is even better than in the original combination.

Figure 7. OAS and Projected Return Advantages of a New IO/Moderately Seasoned Structured PO Combination Versus FNMA 7.5s, 30 Jan 97

Issue	Par Value ($MM)	Market Value ($MM)	Price	OAS	Projected One-Year Total Returns -150bp	-100bp	50bp	0bp	50bp	100bp	150bp
FNMA TR272 IO	32052	11100	$34.55	134bp	-35.41%	-17.44%	0.43%	11.41%	18.34%	23.00%	25.90%
FNMA 93-146 G	10256	5913	57.65	81	71.57	51.59	20.35	2.87	-9.49	-19.33	-27.28
FNMA 93-200 B	8734	2988	34.21	70	75.82	47.72	23.49	5.04	-9.73	-21.70	-31.50
Combination		20000		109bp	12.83%	12.70%	9.76%	7.94%	5.92%	3.81%	1.60%
FNMA 7.5s	19994	20000	$99.78	46bp	11.20%	10.74%	9.54%	7.73%	5.63%	3.31%	0.87%
Advantage				**63bp**	**1.63%**	**1.96%**	**0.23%**	**0.20%**	**0.29%**	**0.50%**	**0.73%**

Source: Salomon Brothers Inc.

Figure 8. Risk Profile: New IO/Moderately Seasoned Structured PO Combination Versus FNMA 7.5s, 30 Jan 97

Issue	Market Value ($MM)	Eff. Dur.	Partial Durations 1 yr.	2 yr.	3 yr.	5 yr.	10 yr.	30 yr.	Eff. Cnvx.	Vol. Dur.	Prepay Dur.
FNMA TR272 IO	11100	-17.4	1.3	1.3	1.7	3.0	-20.1	-4.1	-12.5	1.83	0.493
FNMA 93-146 G	5913	32.4	-1.7	-0.1	-0.7	-1.2	31.4	3.7	20.9	-1.49	-0.540
FNMA 93-200 B	2988	33.7	-0.8	-1.0	-1.7	-4.6	26.8	14.7	14.3	-2.26	-0.772
Combination	20000	4.9	0.1	0.6	0.5	0.6	2.1	1.0	1.4	0.24	-0.002
FNMA 7.5s	20000	4.4	0.1	0.3	0.5	1.2	1.9	0.5	-1.1	0.30	0.004
Difference		**0.5**	**0.0**	**0.3**	**0.0**	**-0.6**	**0.2**	**0.5**	**2.5**	**-0.06**	**-0.006**

Source: Salomon Brothers Inc.