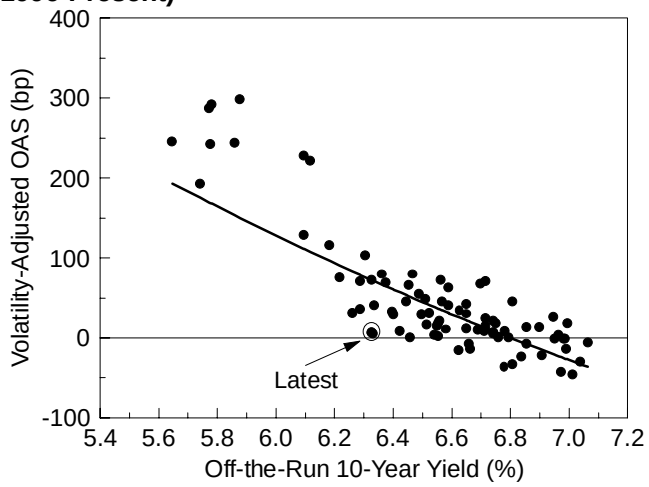
Empirical Durations on Strips

With 10-year yields having approached 6.0%, and with 30-day actual yield volatility on the 10-year Treasury currently at its highest levels since the beginning of the year (14.3%), investors have refocused attention on hedge ratios in the strips market. In the following analysis, we present hedge ratios for IOs that are consistent with the observed (empirical) trading patterns of these securities. Based on this approach, we also calculate empirical OAS (EOAS) for IOs backed by current coupons and find that the sector is fairly priced at current spreads.

Methodology

As in the pass-through sector, the strips market has not traded to a constant OAS, but rather has exhibited OAS directionality with respect to interest rates. This has occurred as the market has become more exposed to adverse prepayment scenarios and has priced in the call and extension risks that dominate in environments of low and high interest rates. We take this directionality into account by widening and tightening OASs on IOs in a way that is consistent with this observed pattern (see graph). Specifically, we use a rolling time-weighted regression of OAS against interest rates that places 50% of the weight on the most recent six months of data and 50% on all prior data. We adjust historical OASs for one-third of the theoretical impact of short-dated implied volatility, consistent with the apparent efficiency of the MBS market in pricing in volatility.

OAS Directionality of Trust 257 IOs (1996-Present)



The table below illustrates the widening and tightening in OAS resulting from this methodology, as well as the corresponding price forecasts in scenarios where rates move by as much as 100 bp. For instance, in a -50 bp scenario, we forecast Trust 254 IOs to widen by 43 bp, while tightening by 55 bp if rates rise 50 bp. The corresponding price forecasts are reasonable, given where these IOs traded in the rate environments of early 1996 and May 1997, and given the subsequent tightening trend relative to historical averages.

IO Empirical Durations

The first table on the next page shows the empirical hedge ratios on IOs using this approach (as of Thursday, August 7, with a 6.24% 10-year Treasury yield). While these durations are slightly more negative than those being used by some investors, it is possible that IOs could trade to even *more negative* durations than shown below because of volatility and yield curve trends.

First, the directionality of ***volatility*** could result in

OAS Directionality and Price Sensitivity of Representative Trust IOs

			15%-Vol OAS					Instantaneous Price				
Security	**Coup**	**WAM**	**-100**	**-50**	**0**	**+50**	**+100**	**-100**	**-50**	**0**	**+50**	**+100**
Trust 249 IO	6.5	305	-2	-36	-76	-122	-175	26-28	30-10	32-27	34-23	36-09
Trust 273 IO	7.0	340	281	118	2	-66	-88	24-07	29-05	33-08	36-04	37-22
Trust 257 IO	7.0	308	136	38	-49	-125	-191	24-04	29-00	32-24	35-19	37-26
Trust 272 IO	7.5	342	457	225	53	-59	-112	21-02	26-12	31-20	35-26	38-19
Trust 254 IO	7.5	302	-19	-52	-95	-150	-216	22-02	27-12	31-28	35-12	38-10
Trust 275 IO	8.0	346	1005	598	303	120	49	18-28	24-00	29-18	34-18	37-25
Trust 251 IO	8.0	292	-115	-129	-160	-206	-268	20-21	25-29	31-00	35-09	38-26
Trust 267 IO	8.5	317	712	447	261	155	129	18-18	23-12	28-14	32-24	35-16

more negative empirical durations on IOs than under a constant volatility environment. For instance, a two-year regression of the implied volatility of three-into-seven-year swaptions against 10-year yields shows that volatility has tended to rise by approximately 110 bp for a 50 bp decline in rates. If volatility remains this directional, our one-third volatility adjustment would tend to produce OASs that are too tight in a rallying rate environment while too wide in a backup. Specifically, the directionality of volatility could make empirical durations on 7.5s more negative by approximately one year.

In addition, to the extent that the ***yield curve*** flattens as it rallies (as it has since April), IOs would trade to more negative durations than implied by a parallel shift. For instance, the durations shown below assume a parallel shift. In order to hedge for non-parallel curve shifts, we recommend a short position in two-years and a long position in 10-years. In this case, the recommended 10-year hedge ratio for Trust 272 IOs would be more negative by 24%. The combined hedge would consist of 1.25 two-years and –1.63 10-years.

IO/PO Empirical Durations

10-yr Yield: 6.24%

		IO		PO	
Security	**Coup**	**Dur**	**10yr**	**Dur**	**10yr**
Trust 249	6.5	-13.1	-0.59	13.8	1.22
Trust 273	7.0	-21.5	-0.98	16.3	1.47
Trust 257	7.0	-20.0	-0.89	15.4	1.42
Trust 272	7.5	-30.6	-1.32	17.9	1.72
Trust 254	7.5	-24.6	-1.07	15.8	1.52
Trust 275	8.0	-37.5	-1.51	17.9	1.80
Trust 251	8.0	-29.5	-1.25	15.9	1.58
Trust 267	8.5	-33.6	-1.31	14.1	1.48

Relative Value

After the recent backup in interest rates, IO OASs are mostly in line with where they were in mid-July, when interest rates were at similar levels as today. In the last table, we calculate the EOAS on a newer 7.5% IO (Trust 272). Terminal prices are based on the OAS directionality described above, while interim cash flows are generated using the Goldman Sachs prepayment model. The IO has an EOAS of 101 bp, compared with 50–70 bp on most collateral after incorporating rolls. With an OAS of 53 bp, IOs backed by current coupons offer projected returns similar to pass-throughs on a hedged basis, though admittedly with somewhat greater uncertainty.

EOAS Analysis

Trust 272 IO (7.5%), Six-Month Horizon

	-100	**-50**	**0**	**50**	**100**
Price	20-02	25-09	30-15	34-28	37-25
6-mo CPR	23	15	6	6	6
IO Tot Ret	-63.85	-27.31	9.14	37.13	54.91
Tsy/Cash	64.98	30.63	2.28	-33.81	-64.02
EOAS			101 bp		