

# Hybrids at a Glance

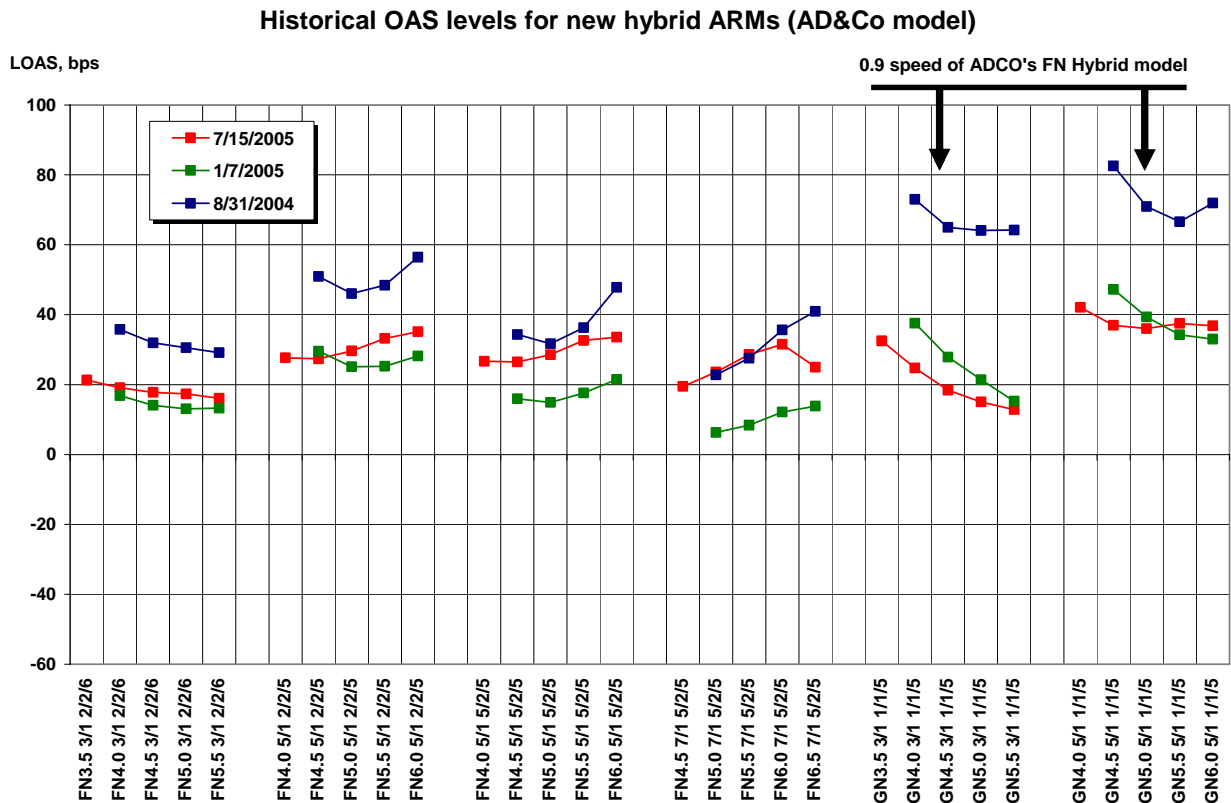
By Alex Levin

Many clients have explicitly expressed a desire to see hybrid ARMs as a part of our standard market analysis posted every Friday for fixed-rate conventional TBAs. We feel a genuine interest from investors in this sector. Whereas hedge fund managers always hunt for less traditional products with hidden value, banks routinely keep originated hybrid loans in their own investment portfolios. In short, we find that hybrids do offer an OAS above fixed rates, but with an interesting and complex dynamic to bear in mind.

## Rich or cheap?

In each of our tests, we employed the AD&Co valuation system operating with the 4.3.3 prepay model that almost all of our clients use. We used 2000 paths of quasi-Monte-Carlo and a single-factor Hull-White model. As I mentioned at the 13th Client Conference and in the February Pipeline, using the two-factor model presents no sizable contribution to the pricing of hybrid ARMs. In Exhibit 1, we use today's OAS levels for new hybrids (red line) into a historical retrospective. As shown, the hybrid market has tightened from last summer, but, as we know, so has the fixed-rate market. To compare with the TBAs, we report current-coupon LOAS for FNCLs as +12.3 bps (August), -3.8 bps (January) and -3.0 bps (July) – on the matching market dates.

### EXHIBIT 1



Hence, FNMA hybrids continue to trade cheaper than fixed-rates by 20 - 30 bps of LOAS. The most stunning dynamic is seen in the introduction of a new product, GNMA hybrids, – initially at a very cheap price level, which ultimately closed in on the FNMAs. For the absence of the GNMA hybrid prepay model, we have employed the FNMA hybrids decelerated by 10%. Note that the GNMA product features a fairly tight 1% reset cap, which is reflected in the marketplace (see Exhibit 2).

Exhibit 1 shows that all agency hybrids are now traded at comparable LOAS levels. Today's levels are much tighter than those of last summer, but, in fact, somewhat wider than those of last winter.

### **The details**

Exhibit 2 discloses all major details of hybrid pricing including effective durations (OAD), WAL-equivalent speeds, option cost as loss in spread and a value of the tail.

### **EXHIBIT 2**

Hybrid	Price	LOAS	OAD	Life CPR	Option Cost	Tail
FN3.5 3/1 2/2/6	98.20	21.3	2.35	26.1	14.7	0.57
FN4.0 3/1 2/2/6	99.38	19.1	2.14	26.7	15.0	0.64
FN4.5 3/1 2/2/6	100.42	17.8	1.92	27.3	15.7	0.66
FN5.0 3/1 2/2/6	101.33	17.4	1.63	30.5	15.0	0.62
FN5.5 3/1 2/2/6	102.11	16.1	1.31	33.5	13.6	0.56
FN4.0 5/1 2/2/5	98.16	27.7	2.91	20.4	13.7	0.37
FN4.5 5/1 2/2/5	99.56	27.4	2.64	20.4	19.8	0.40
FN5.0 5/1 2/2/5	100.77	29.6	2.34	22.6	28.5	0.39
FN5.5 5/1 2/2/5	101.77	33.2	1.94	26.2	28.8	0.35
FN6.0 5/1 2/2/5	102.63	35.1	1.47	31.1	27.1	0.30
FN4.0 5/1 5/2/5	98.45	26.7	2.79	20.4	12.2	0.64
FN4.5 5/1 5/2/5	99.80	26.5	2.53	20.4	17.2	0.61
FN5.0 5/1 5/2/5	100.95	28.5	2.23	22.6	24.6	0.55
FN5.5 5/1 5/2/5	101.89	32.6	1.86	26.2	25.3	0.46
FN6.0 5/1 5/2/5	102.73	33.6	1.39	31.1	24.5	0.37
FN4.5 7/1 5/2/5	99.17	19.4	3.31	15.8	25.4	0.54
FN5.0 7/1 5/2/5	100.59	23.6	2.82	16.2	33.7	0.48
FN5.5 7/1 5/2/5	101.77	28.6	2.29	20.0	44.1	0.39
FN6.0 7/1 5/2/5	102.75	31.5	1.67	25.9	44.2	0.31
FN6.5 7/1 5/2/5	103.69	25.0	0.95	32.8	36.9	0.24
GN3.5 3/1 1/1/5	97.17	32.5	2.59	24.7	15.9	-0.18
GN4.0 3/1 1/1/5	98.64	24.7	2.42	25.2	19.3	0.05
GN4.5 3/1 1/1/5	99.95	18.4	2.19	25.7	17.4	0.20
GN5.0 3/1 1/1/5	101.08	15.0	1.88	28.6	15.4	0.29
GN5.5 3/1 1/1/5	102.02	12.8	1.56	31.5	13.0	0.34
GN4.0 5/1 1/1/5	97.23	42.1	3.13	19.1	13.1	-0.06
GN4.5 5/1 1/1/5	98.92	37.0	2.89	19.1	17.3	0.06
GN5.0 5/1 1/1/5	100.34	36.0	2.59	21.1	24.5	0.12
GN5.5 5/1 1/1/5	101.53	37.5	2.18	24.5	27.8	0.16
GN6.0 5/1 1/1/5	102.58	36.8	1.70	29.1	27.2	0.17

Speaking of durations, a simple **2 – 2 ½ – 3 rule** seems appropriate for the new par-prices – 3/1, 5/1, and 7/1 FNMA's (GNMA's are longer by 0.2 yrs). Premiums are shorter and discounts are longer. The prepay model has a fairly fast base speed (reflecting the typically shorter horizon of hybrid borrowers), so even discount hybrids don't get slower than 20 CPR. The overall prepay speed's dependence on interest rates is not as strong as we know it to be for fixed-rate MBS and is, in general, inline with the OAD levels. That is, the 3/1s are the least and the 7/1s are the most interest-rate sensitive.

The tail contributes a value that depends on the product type, coupon and 1<sup>st</sup> reset cap. For FNMA's, a higher coupon and longer teaser usually depress the tail. The 1<sup>st</sup> cap is another important factor. Compare, for example, valuation results for 5/1s with various cap structures. FNMA's 5/2/5 cap structure boosts the tail versus the 2/2/5. Furthermore, GNMA's tight 1/1/5

caps may actually lead to a negative tail for low coupons: these hybrids remain discounted even after the first reset.

### **OAS versus market quotation**

A simplified market convention is no replacement for an adequate OAS model. One can say that a hybrid is priced at 101 or at “75 bp spread to TSY to 15 CPB;” the latter is another quote type adding little insight. It does not mean that the market actually uses the Treasury curve as a pricing benchmark, or expects the ARM to run off at a 15 CPR, or discards the tail. Nor does it believe in earning 75 bps above a Treasury rate. A common convention is to convert price into yield following the long bond market tradition; unlike bullets, hybrid ARMs amortize randomly and reset. So, “15 CPB,” “25 CPB,” etc. are simply meant to set up an unambiguous, model-free test to solve for the yield spread.

For example, the Z-spread difference between 5/2/5 and 2/2/5 cap structures, typically 8-15 basis points in the market place, is annihilated in OAS. 5/1 and 7/1 discounts may look too rich from the CPB angle, but much less so on a full OAS basis – once the valuable tail is “re-attached.” Hence, in order to fully value hybrid ARMs and select a product, a rigor of the OAS modeling approach cannot be compromised nor replaced.