Market Focus

Capture the Value of Mortgages Using Options

Mortgages have once again widened as the market has rallied. Specifically, GNMA current coupons are 16 bp OAS wider than they were at the end of August, when the 10-year was 65 bp higher. At these levels we believe that mortgages represent compelling value on a historical basis. They are at their wides relative *both* to the lows in interest rates in 1993 and to the peak in volatility this past June.

GNMA Pass-Throughs at Wides Relative to Level and Volatility

	OAS on GNMA Coupon						10-Yr	Volatility on
Comparable Period	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**Yield**	**5-Yr Caps**
October 19, 1995	47	61	74	84	87	94	5.97	21.5
Avg July 6-10, 1995	42	54	62	71	75	81	6.03	25.5
Avg Oct 8-20, 1993	42	58	73	67	93	89	5.24	21.5

The recent spread widening cannot be explained by a spike in volatility, which was partly responsible for the widening of spreads back in June. Nor can it be explained by a surge in refinancings, which drove spreads wider back in October 1993. Clearly, then, mortgages are cheap on a historical basis, but with one caveat — they could get even cheaper if the market continues to rally. Even with this possibility, we believe that mortgages represent value because this risk can be mitigated by purchasing options while still leaving a significant spread to a comparable-duration Treasury. Below, we demonstrate such a strategy using GNMA 7.5s in combination with 2-1/2 point out-of-the-money puts and calls on the 10-year Treasury. *This combination outperforms its Treasury hedge by at least 46 bp* on an annualized basis under parallel rate shocks up to a 150 bp rally scenario over three months, provided the GNMA trades in line with our OAS directionality assumptions. (And even this downside can be hedged by layering on an even further out-of-the money call).

Buy $100 MM GNMA 7.5s and $23 MM Notional of 3-Month Puts and Calls on the 10-Year Treasury Struck 2 1/2 Points Out of the Money

	Yield Curve Shift						
	-150	**-100**	**-50**	**0**	**+50**	**+100**	**+150**
Non-Annualized 3-Month Returns							
GNMA 7.5s	5.78	5.20	3.88	1.89	-0.37	-2.96	-5.83
GNMA 7.5s + Options	7.73	6.20	3.97	1.60	-0.46	-2.24	-4.34
Tsy Hedge	8.18	5.83	3.58	1.43	-0.62	-2.58	-4.46
Pickup in Returns (bp)							
3-Month	-45	37	39	17	16	34	12
Annualized	-183	150	159	71	67	137	46
Assumed GNMA 7.5 OAS	114	97	84	74	65	59	57
Breakeven GNMA 7.5 OAS	107	103	90	77	68	64	59

In the analysis above, the holding period returns for the mortgage are calculated incorporating the historical market directionality of OAS. As a benchmark, we construct an equal-dollar and empirical-duration Treasury portfolio consisting of a 10-year Treasury and a three-month T-bill. The 10-year's weight is based on our empirical OAS duration for GNMA 7.5s, which is 4.2 years. For $100 million of GNMA 7.5s, this Treasury portfolio consists of $59 million face of the 10-year and $41 million face of three-month Treasury bills. The puts cost 19+/32nds per $1 million of notional balance and the calls cost 20.25/32nds per $1 million.

This analysis shows that, in pricing volatility richer than the Treasury options market, mortgages are cheap even if they do widen further as the market continues to rally. Of course, spreads could widen by more, or tighten by less, than recent trading history would suggest. However, since negative convexity has deteriorated and mortgages are trading highly directionally, they should be more difficult to hedge in the near future. To gauge this risk, we also show for each scenario the breakeven OAS that would result in the hedged GNMA 7.5s having a scenario holding period return equal to that of the Treasury portfolio. However, the risk that spreads will widen by even more than our assumptions seems small. Our analysis indicates that GNMA 7.5s would have a 90 bp OAS if rates were to drop back to October 1993 levels, which is almost 18 bp wider than where GNMA 7.5s were being priced at that time.

ARM Payment Shock: Some Preliminary Waves

Investors generally believe that adjustable rate mortgage pools are likely to experience higher default rates than fixed rate mortgage pools because of payment shock; in other words, they believe that some ARM borrowers will be unable to afford the higher monthly payments caused by a rise in interest rates. The primary uncertainty regarding payment shock is not whether it exists — because we believe it does — but, rather, the magnitude of the effect. We've concluded that the impact is either relatively small or delayed well beyond the roll month. After examining ARM delinquency rates over the first nine months of this year, we found that payment shock has been difficult to distinguish from the normal increase in delinquencies associated with seasoning. Our findings are preliminary in that it may take several months before the increase in mortgage payments leads to an increase in defaults. We intend to update our analysis in six months in order to draw firmer conclusions.

Looking at the 1993 Vintage

The accompanying graph shows delinquency rates for nonconforming ARMs grouped by roll month and originated in 1993 by Prudential Home Mortgage (PHM). We chose to look for payment shock in the PHM 1993 ARM data for three reasons. First, PHM originated a sufficient number of ARMs in 1993 (over $3.9 billion) to make the analysis possible. Second, many of these ARMs will have experienced about a 200 bp rate increase in both 1994 and 1995. It is only after the second rate increase that we expect to see any payment shock, because ARMs are typically underwritten at 200 bp over their initial teaser rates. (Also, in many instances in 1993, ARMs were underwritten at *more* than 200 bp above the teaser rate since many originators used a minimum underwriting rate of 7%.) Third, there is no other data for an ARM vintage where the rates have risen 400 bp over the initial teaser rate.

Small Increases in Delinquencies

We calculate delinquency rates across ARMs grouped by payment roll month in order to zero in on the delinquency rates immediately after the mortgages have rolled. The delinquency rates measure the percentage that are seriously delinquent (that is, 60 or more days delinquent, including mortgages in the process of foreclosure and real estate owned (REO)). We measure the delinquency rates as a percentage of original balance to minimize the confusion that prepayments can cause. The only ARMs originated in 1993 that have reset twice and have had enough time to become at least 60 days delinquent, are loans that roll in March, April, May, June, and July. The data do generally show an increase in the delinquency rates for ARMs 90 days after their payment adjustment. For example, the delinquency rate for ARMs that roll in July increased to 1.96% from 1.46% from August to September of this year. Although delinquencies increased after the roll date, the increases were not dramatic and it is unclear how many of them were caused by payment shock. Many of the delinquency rates were rising before the roll date as the pools seasoned. For loans that roll in July, delinquencies almost doubled over the six months before the roll date.

Delinquency Rate by Roll Month for 1993 PHMC ARMs