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***There is no such thing
as the 30-year mortgage
rate.***

The Fuzziness of Mortgage Rates

In the middle of August 1998, the ten-year Treasury yield was around 5.40% and 30-year mortgage rates hovered at just over 6.90%. Because mortgage rates were less than 10bp from their January 1998 lows, a ten-year yield of 5.25% was often cited as the “threshold” needed to spark a new refinancing wave. Then, from the middle to the end of August, the ten-year Treasury yield fell almost *40bp*, to close to 5%, but mortgagors barely responded. Why? Although many factors determine refinancing levels, the major reason in this case was that mortgage rates did not drop in line with Treasuries; in fact, a dramatic widening in spreads meant that mortgage rates hardly dropped at all through the end of August.

The moral of the story is that people refinance into mortgages, not Treasuries, and hence, that mortgage rates, not Treasury yields, determine prepayment rates. However, whereas at any point in time there is (for all practical purposes) a single ten-year Treasury yield,² there is no such thing as *the* 30-year mortgage rate; different lenders will offer different rates, and the same lender will offer a variety of note rates, depending on the points or other costs associated with the loan.³ Thus, any mortgage rate used in a prepayment model includes a certain “fuzziness.” This is a critical issue because, as we saw in January and in the late summer, small differences in mortgage rates can make a crucial difference to refinancing levels. In

² We will restrict our attention to on-the-run Treasuries.

³ It could be argued that, theoretically, these different rate/point combinations are equivalent. However, this is true for the lender (based on its valuation model), but not necessarily for borrowers.

this article, in our continuing series of quasi-educational pieces, we discuss the various sources for primary market mortgage rates and why they tend to differ, and we describe how we calculate mortgage rates for the SSB prepayment model.

Sources for Mortgage Rates

Figure 34 lists some useful publicly available⁴ sources for mortgage rates. In each case, the published mortgage rate for a particular period is calculated by collecting a representative sample of advertised rates for a particular loan product (for example, a 30-year fixed-rate FHA mortgage) and then taking the average. The sources listed in Figure 34 also quote the average number of *points* associated with the mortgage rate. In practice, these quoted points include the *origination fee* and *discount points*.

Origination fees, although quoted in points, should not be confused with discount points.

A Clarification of Points. The *origination fee* represents part of the costs involved in mortgage settlement. Although this fee is often quoted in points, it has no effect on buying up or buying down the interest rate as *discount points* do. *Discount points* are a one-time fee the lender charges to buy down the interest rate permanently over the life of the mortgage. The points associated to a mortgage rate are usually set by lenders on a daily basis according to market conditions, and mortgage borrowers typically have a menu of three or four rate/point combinations from which to choose.⁵

Figure 34. Useful Sources for Mortgage Rates

Mortgage Rate Survey	Availability	Period Survey Rates Cover	Survey Composition	Comments
Freddie Mac Primary Mortgage Market Survey (PMMS)	Released every Thursday on web site (www.freddiemac.com) and Bloomberg (FMAC <Go>)	Monday through Wednesday of the same week	125 lenders in 5 regions	Rates are for conforming conventional mortgages.
MBA Applications Survey	Released every Wednesday on web site (www.mbaa.org)	Previous week	Mostly mortgage banks, but in recent years has expanded to include more commercial banks and thrifts	Separate rates are published for conventional mortgages (conforming and jumbo) and FHA mortgages.
BanxQuote	Released Wednesday afternoon on web site (www.banx.com) or Bloomberg (BANX <Go>)	Wednesday	The 3 leading banks from every state	Separate rates are published for conforming, jumbo, and government loans .
HSH Associates	Released every day on web site (www.hsh.com)	Previous day	2,500 lenders	These rates are for conventional (conforming and jumbo) mortgages.

Source: Salomon Smith Barney

⁴ With the exception of the MBA Application Survey, which is only available to subscribers. Access to the Survey on the MBA web site requires a login and password.

⁵ In the future we will discuss how lenders derive their rate/point menus and other aspects of the interaction between primary and secondary mortgage markets.

Significant variations exist in offered mortgage rates.

Variations in Mortgage Rates. The mortgage rates presented in Figure 34 are all based on surveys of lenders and tend to differ from each other. Among the main reasons for such differences are the following:

- Types of lenders surveyed. The Freddie Mac and HSH surveys both cover a fairly broad cross-section of mortgage lenders. However, the MBA survey covers mortgage bankers for the most part, although the survey has been expanded it in recent years, while the BanxQuote survey focuses on banks.
- Period of survey. Except for HSH, the surveys are done weekly,⁶ and hence, can represent average rates at different points during a given week.
- Types of loans. The Freddie Mac survey is for conforming conventional loans, while the MBA and HSH surveys give a conventional rate that includes jumbos.
- Points. The Freddie Mac rate tends to be quoted for roughly one point (by design⁷), whereas the MBA survey typically quotes points around 1.3. The other surveys vary, but average around a point.

The Freddie Mac PMMS is probably the most widely used mortgage rate.

The Freddie Mac PMMS rate is perhaps the closest to a standard, and tends to be the most widely used. However, the sampling period is the first couple of days of the week (with a heavy weight on Tuesday), and the rate can become significantly out of date by the end of the week during times of large interest rate changes (as in the past few months).

The prepayment model uses a mixture of historical and projected mortgage rates.

Mortgage Rates Used in the SSB Prepayment Model

A prepayment model needs a time series of monthly mortgage rates to project speeds on an MBS. The series needs to go back to the origination date of the collateral and go forward to maturity. Hence *historical* and *projected* rates are needed.

Historical Rates. The model uses an average of the weekly Freddie Mac PMMS rates to obtain a monthly series. Our feeling is that this is the most representative measure of the *average* rate likely to be experienced by a typical borrower during a particular month.⁸ As indicated earlier, a change in the wording of the survey was made at the beginning of the year, leading to a roughly 0.6 drop in the points reported, and hence, we adjust the survey rate from then on to ensure our model uses a consistent time series of mortgage rates.

Projected Rates. As described in the October 2, 1998, issue of this publication, an up-to-date 30-year mortgage rate is calculated from current MBS prices, essentially by calculating a monthly compounding parity coupon yield and adding a servicing spread.⁹ If interest rates are unchanged, this is the mortgage rate used going forward

⁶ In the case of BanxQuote, rates for selected banks are updated daily.

⁷ The wording of the survey was changed at the beginning of 1998 to ensure that lenders were quoting a rate corresponding to roughly one point. Prior to this, the quoted points tended to be between 1.5 and 2. This should be kept in mind when using historical values of the PMMS survey.

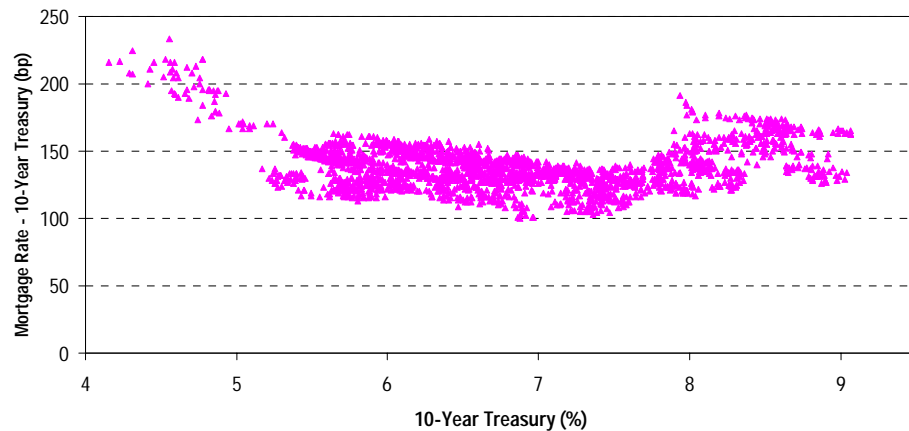
⁸ Note that a single number is by necessity used as an average for all the different rates borrowers are likely to see during the month, and from different lenders. This partly explains some of the uncertainty in trying to project speeds from month to month.

⁹ This is the number labeled *Base Mortgage Rate* at the bottom of our OAS reports.

(so that, for the **current month**, the 30-year rate used is a weighted average of the PMMS rate month to date and the calculated mortgage rate).¹⁰

How are Mortgage Rates Calculated as Interest Rates Changes? This is a key question. The current method used is to assume that 30-year mortgage rates move in parallel with the ten-year Treasury yield. Should we assume that mortgage-to-Treasury spreads vary systematically as the yield curve changes? Although a common perception exists that MBS spreads are inversely correlated with the level of Treasury rates — and there are indeed periods (such as the late summer and early fall this year, as discussed at the beginning of this article) when this is the case — the long-term historical evidence does not point to any simple or stable relationship. Figure 35 shows a scatter plot of the spread between the base mortgage rate and the ten-year Treasury and the level of the ten-year since the beginning of this decade.

Figure 35. Mortgage Spread and Ten-Year Treasury Yield, 1 Jan 90- 18 Nov 98



Source: Salomon Smith Barney.

The correlation between the two data sets in Figure 35 is only -0.08, indicating that a *linear* relationship does not exist. However, it is possible that spreads depend on some function of current and past rates (such as the *media effect*, so that spreads widen when rates hit multiyear lows, but then tighten as rates stabilize). This is currently a topic for research.¹¹

¹⁰ Note that we focus on 30-year rates. The actual rate used to calculate the refinancing incentive is a weighted average of the 30-year rate and shorter mortgage rates.

¹¹ An indication of the complexity of this issue is given by the fact that over the past month, the correlation between daily changes in the OAS of Fannie Mae 6.5s and changes in the ten-year yield is a *positive* 0.28 (see MB728).