FannieMae

FUNDINGNOTES®

For Fannie Mae's Investors and Dealers

Recent Trends in the Issuance of Fannie Mae Callable Debt Securities

January 2009

Figure 1

Callable Debt Issuance in December 2008

Structure	Issue Amount	Count
1.50NC0.25	$ 280,000,000	3
1.50NC0.50	$ 850,000,000	1
2.00NC0.25	$ 712,500,000	9
2.00NC0.50	$ 10,000,000	1
2.00NC1.00	$ 300,000,000	2
2.25NC0.25	$ 31,000,000	1
2.50NC0.25	$ 30,000,000	1
2.50NC0.50	$ 90,000,000	2
3.00NC0.25	$ 185,000,000	4
3.00NC0.50	$ 50,000,000	1
3.00NC1.00	$ 2,500,000,000	3
3.00NC2.00	$ 85,000,000	1
3.50NC0.50	$ 40,000,000	2
3.50NC2.00	$ 65,000,000	1
4.00NC1.00	$ 55,000,000	2
4.00NC2.00	$ 40,000,000	2
5.00NC0.25	$ 65,000,000	3
5.00NC1.00	$ 2,100,000,000	1
5.00NC3.00	$ 60,000,000	1
7.00NC1.00	$ 2,600,000,000	2
8.00NC0.25	$ 20,000,000	1
10.00NC2.00	$ 4,800,000,000	3
30.02NC1.00	$ 1,404,000,000	4
Grand Total	**$ 16,372,500,000**	**51**

Figure 2

Type of Options	December 2008	2008
American	0.2%	5.5%
Bermudan	15.7%	31.2%
European	84.1%	63.3%
Total	**100.0%**	**100.0%**

In this edition of *FundingNotes*, we provide an overview of recent trends in Fannie Mae's callable debt issuance and focus on some of the more common structures that were issued in the last part of 2008, especially in December. In particular, we will focus on the tenors, the types of cal options, and the lockout periods of the securities that were issued in December. We will also analyze the role that volatility has played in determining the maturities and lockout periods of callable debt securities that have been issued recently and preferred by investors. We then model the potential performance of those callable debt securities that have been issued most frequently in December and analyze how these securities may perform in different interest rate environments in the coming year.

While Fannie Mae's issuance of callable debt often fluctuates over the course of a year due to a number of different market factors, 2008 was a year in which Fannie Mae's monthly issuance of callable debt securities changed drastically between the beginning and the end of the year. Fannie Mae's callable debt issuance in 2008 began relatively strong with monthly issuance of callable debt averaging approximately $18 billion during the first six months of the year. However, during the second part of the year, the agency market faced a number of challenges and the average Fannie Mae issuance of callable debt decreased considerably. The average monthly amount of callable debt that Fannie Mae issued during the third quarter of 2008 was $6.3 billon, and issuances continued to decrease in October and November, with issuance of $3.3 billon and $1.2 billion respectively.

While there was a significant decrease in issuance of callable debt from July to November 2008, the issuance of callable debt increased noticeably in December 2008. During the month of December, Fannie Mae issued $16.4 billion of callable debt **(see Figure 1)**. Of this $16.4 billion, issuance was broadly distributed between different tenors, with the largest percentage of callable debt being issued in the long-term maturity bucket.[1] Moreover, 32 percent of callable debt securities were issued with maturities between 1-3 years (short-term), 30 percent were issued with maturities between 4-7 years (intermediate term), and 38 percent were issued with maturities between 8-30 years (long-term). Specifically, within the long-term bucket, the 10-year non-call 2-year structure was particularly popular with $4.8 billion in issuance during the month of December. The 38 percent issuance of long-term callable debt securities in December of 2008 was a noticeable increase. During the entire year of 2008, we only issued 28 percent of long-term callable debt securities. In terms of the type of options that were associated with these debt securities that were issued in December of 2008 **(see Figure 2)**, approximately

[1] Long-term maturity callable debt securities refer to callable securities with maturities of eight years and beyond, and lockout periods of greater than 12 months.

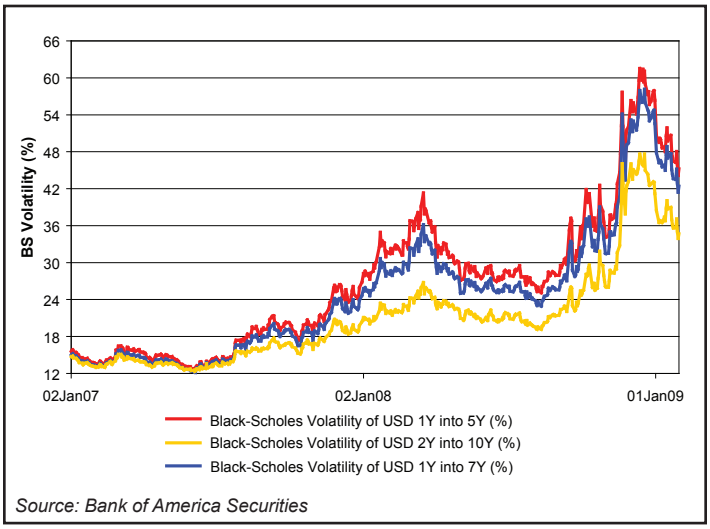
84 percent that were issued had European call options. The 84 percent of callable debt securities that were issued with European call options represents a significant increase over the percentage of debt that was issued with European call options over the course of the year, when approximately 63 percent of the callable debt securities that were issued had European call options. The increase in the percentage of callable debt securities with European options in December can in part be attributed to the fact that during that month Fannie Mae issued a number of more standard structures (for example 3NC1, 7NC1, and 10NC2), in large sizes and the investors who purchased these securities preferred European options, which tend to be easier to analyze and hedge.

The increase in callable debt issuance, and in particular, the increase in callable debt securities with longer tenors and European style call options in the latter part of December occurred for several reasons. First, in response to low rates across the curve, many investors extended duration in an attempt to increase yield. These investors were looking for longer-term paper with high credit quality and relative liquidity. Second, swaption implied volatilities were at an all-time high towards the end of 2008, which allowed investors the opportunity to enhance returns by going short interest rate volatility if they believed that implied volatility would eventually decline. Third, recent spread movements resulted in longer-dated Fannie Mae callable debt being priced attractively from volatility and total return perspectives.

Implied Volatility at Historically High Levels

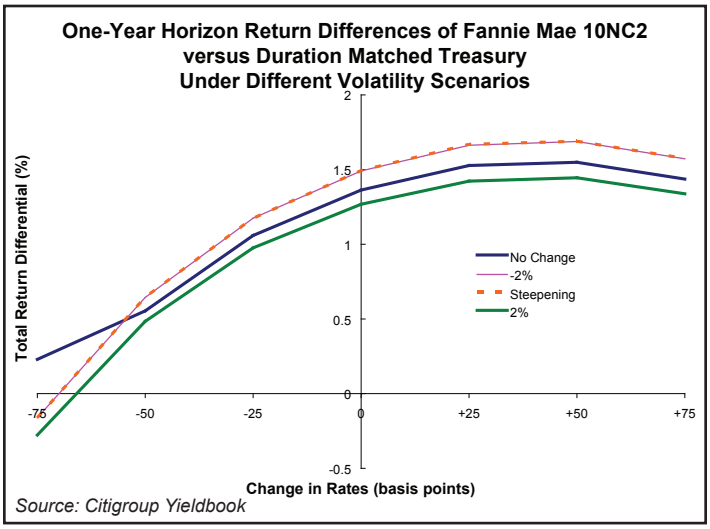
Implied volatilities have been at historically high levels since the fourth quarter in 2008 **(see Figure 3)**. Implied volatility is the term applied to the level of interest rate volatility that would need to prevail in the future for the current pricing of a callable security, or other securities with embedded optionality, such that the investor breaks even (i.e. investors will neither receive a profit nor incur loss). Callable debt investors would naturally prefer to buy callables at higher implied volatility and to sell callables at lower implied volatility. Therefore, if the level of the implied volatility persists at such a high level, investors can short interest rate volatility by purchasing callable debt securities if they believe the implied volatility would trend downward in 2009.

Given that investors have bought more longer-dated Fannie Mae callable debt recently, we have run a hypothetical scenario of how longer-dated callable debt might perform in the future. For modeling purposes, we chose a 10-year non-call 2-year European style callable (10NC2), and we ran scenarios on the potential return performance of the 10NC2 callable relative to a duration-matched Treasury security under different volatility and interest rate scenarios. **Figure 4** shows the results of the one-year horizon return differences between the 10NC2 callable relative to a duration-matched Treasury security with an unchanged, up two percent, down two percent and steepening volatility surface. As predicted, based on those assumptions, the 10NC2 outperforms when the volatility surface drops two percent or the surface



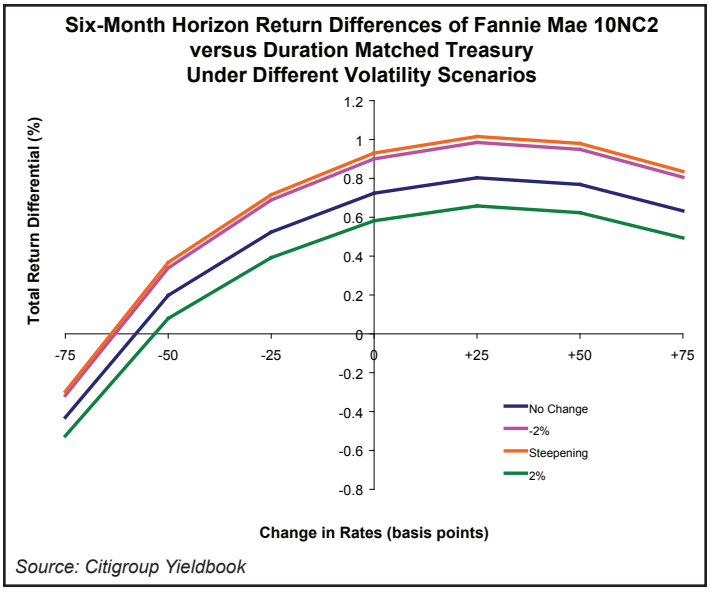
Source: Bank of America Securities

Figure 3



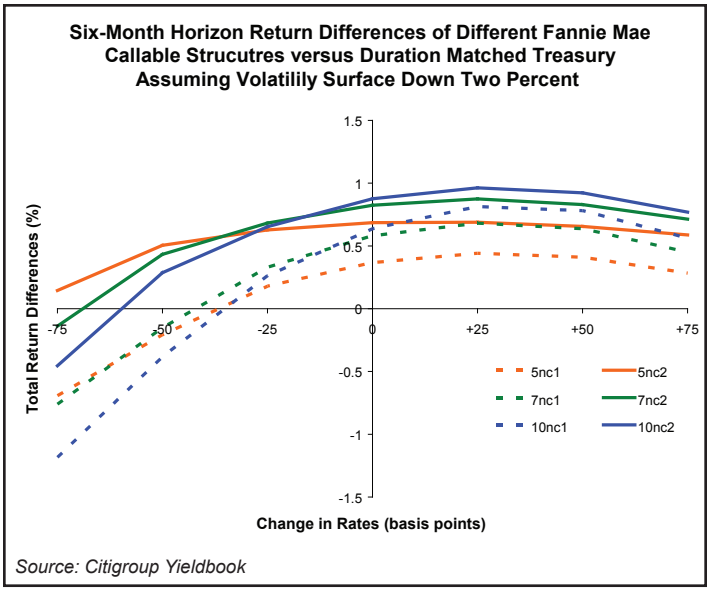
Source: Citigroup Yieldbook

Figure 4



Source: Citigroup Yieldbook

Figure 5



Source: Citigroup Yieldbook

Figure 6

steepens, and when interest rates across the yield curve simultaneously experience a parallel increase of 25 basis points. Given these assumptions, even if the volatility surface and the interest rate remain at the same levels, the 10NC2 still provides a greater rate of return than such Treasury security.

Figure 5 shows the same analysis assuming a six-month horizon. The results of the analysis are similar to the results assuming the one-year horizon. However, what is more prevalent in this analysis pertains to the outperformance of this 10NC2 security when the volatility surface steepens, led by a larger decline in front-end volatility. Many economists have expressed a view that short-term rates will remain range-bound. In fact, the implied probability of the Fed Funds rate remaining at between zero and 25 basis points is close to 65 percent for the first half of 2009. Investors have the potential to benefit from owning longer-dated callables if short-term rates stay in a low range and implied volatility decreases in the coming months. It is also interesting to note that, under these assumptions, the 10NC2 still outperforms the similar duration Treasuries when interest rates experience a parallel shift across the yield curve between -25 basis points and +75 basis points.

Total Return Comparison of 5-, 7-, and 10-year Callables Relative to Treasuries

As mentioned earlier, investor interest in extending duration to pick up yield can also be shown by analyzing total returns of different callable structures relative to duration-matched Treasuries. **Figure** 6 shows how 5-, 7-, and 10-year callables perform versus duration-matched Treasuries in a hypothetical scenario where the volatility surface decreases by two percent in the coming six months. Longer-dated callables, under that scenario, tend to outperform more than shorter-dated callables. In this scenario, investors who believe that rates across the curve will remain range-bound may be able to earn an excess return from investing in a 10NC2 over the other two callable structures we analyze here. This is especially the case for the 5NC1 security. Also, the impact of volatility changes affect longer-dated callables more than shorter-dated callables. Therefore, callable securities with longer lockout periods tend to outperform those with shorter lockout periods. Figure 4 clearly illustrates this point. Using these hypothetical scenarios, the three callable structures, 5NC2, 7NC2 and 10NC2 all outperform 5NC1, 7NC1 and 10NC1, respectively.

Callables vs. Mortgage Pass-Throughs

An additional factor that many believe contributed to the increase in callable issuance in December was the tightening of mortgage pass-through valuations that occurred that month. In mid-December 2008 **(see Figure 7)**, there was a sudden decline in 30-year current coupon LIBOR OAS from almost +80 basis points to +45 basis points, which encouraged some investors to sell volatility by purchasing comparable duration agency callables (with a one-time call) instead of transacting in the MBS market. For example, a generic

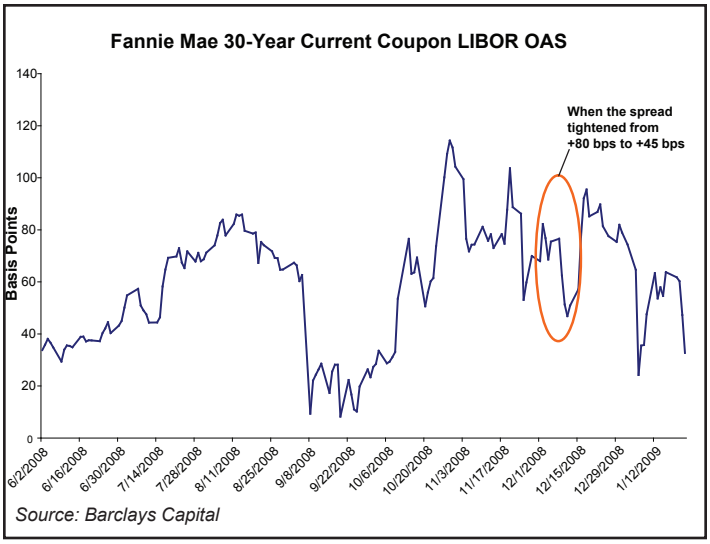


Figure 7

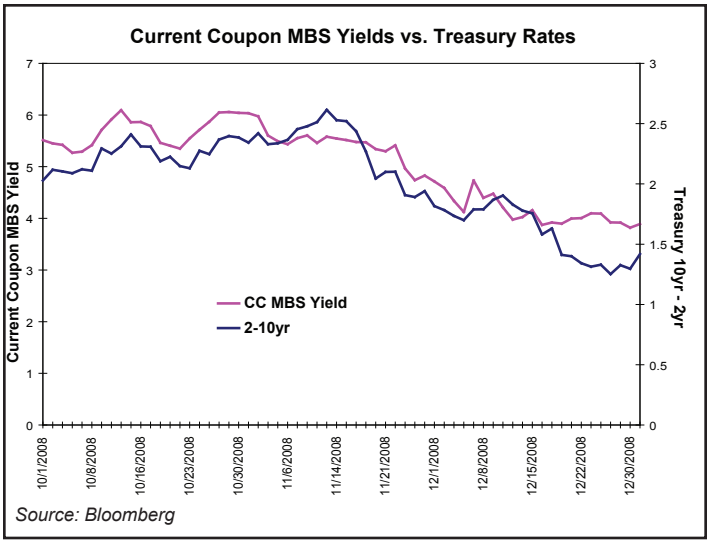


Figure 8

10NC2 callable security with a one-time call option had a modified duration of 4.25 years and 30-year Fannie Mae 5% MBS had a modified duration of 4.37 years. When the mortgage LIBOR OAS tightened, investors could purchase comparable duration agency callables, which allowed them to gain exposure to a less negatively convex asset while earning extra yield. Moreover, when MBS yields declined from 4.78% in late November to 3.89% in late December as Treasury rates declined dramatically in December **(see Figure 8)**, investors would not get that much coupon income from investing in agency MBS. Therefore, investors looked to sell volatility using agency callables to enhance returns.

Conclusion

With the Fed on appearing to be on hold and low rates, as investors look to extend duration to pick up yield, they look for longer-term high credit quality vehicles such as Fannie Mae callable debt securities. By doing so, investors can short interest rate volatility by taking a view on the direction of implied volatility such that the implied volatility is trending down in 2009, as it was at historically high levels in the latter part of 2008. In that case, investors may also earn excess returns by purchasing longer-dated callables relative to duration-matched Treasuries. Assuming that rates are range-bound, the analyses described in this *FundingNotes* project that callables have the potential to outperform duration-matched Treasuries in a number of scenarios.

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Addendum

On October 23, 2008, Barclays Capital announced that Fannie Mae debt that had traditionally been classified in the category “Government-Sponsored” (see below):

Barclays U.S. Aggregate Index > Government-Related > Agencies > Government-Sponsored would be reclassified into the following category “Government Owned – Not Guaranteed” (see below):

Barclays U.S. Aggregate Index >Government-Related > Agencies > Government Owned - No Guarantee.

This change was effective on December 1, 2008. The pie charts below show where Fannie Mae debt was categorized both before and after the change to the Barclays Index.

Barclays U.S. Agency Index with Reclassifications of Government Guaranteed Bank Debt and Fannie Mae Debt