

## ➤ Product Overview: **Callable Debt**

### **Why does Freddie Mac Issue Callable Debt?**

A significant portion of Freddie Mac's debt funding uses medium- or long-term callable debt securities. Callable debt securities have a built-in call option, that gives Freddie Mac the right to redeem and retire the debt security prior to its stated final maturity. In return for granting Freddie Mac that option, investors receive a higher yield than they would on comparable Freddie Mac non-callable debt securities. The reason Freddie Mac issues callable debt securities lies in the types of assets we finance.

In accordance with our statutory mission, Freddie Mac purchases residential mortgages and mortgage securities that finance homes for middle-income and low-income American families. The vast majority of these mortgages and securities permit the borrower to repay all or any portion of principal on the mortgage loan at any time prior to its scheduled maturity. When mortgage interest rates fall borrowers tend to pre-pay their mortgages and refinance their homes with new mortgages that have lower rates.

In fixed-income terminology, the borrowing homeowner holds a type of call option and the mortgage investor, Freddie Mac, bears the interest-rate risk associated with prepayment. In effect, Freddie Mac has sold call options as result of purchases of home mortgages. To mitigate this risk, Freddie Mac purchases offsetting interest-rate call options, either by issuing callable debt or using derivative instruments. Issuing callable debt that can be redeemed when prevailing interest rates fall and mortgage prepayments accelerate helps Freddie Mac to better match the duration of our assets to the duration of our liabilities. Our ability to refinance our debt at lower rates translates into lower overall borrowing costs for Freddie Mac and America's homeowners. We also purchase options in the derivatives market to offset the market risks embedded in our mortgage assets. While

derivatives are an important component in our overall risk management program, we often prefer to issue callable debt because this does not create or increase credit exposure to derivative counterparties. Callable debt also serves as an effective way to diversify our investor base while providing a source for managing interest-rate risk and keeping Freddie Mac safe and sound.

---

“Our ability to refinance our debt at lower rates translates into lower overall borrowing costs for Freddie Mac and America's homeowners.”

---

### **What Types of Call Options Are Included in Callable Debt?**

Three types of options are embedded in the callable debt that Freddie Mac issues: American-, Bermudan- and European-style call options. A bond with an American-style call option is callable by the issuer, Freddie Mac, at any time on or after the first call date. A bond with a Bermudan call option may be called by Freddie Mac only on scheduled call dates, which are typically coupon payment dates. A European-style callable bond is callable by Freddie Mac only on a

specified exercise date – if the call does not occur on the stated call date, the bond becomes a “bullet” (non-callable) security for the remainder of its term and will remain outstanding until its original stated maturity date. Maturities for callable issues can range from one to 30 years. The period before the first call date is referred to as the “lockout” period, which typically ranges from three months to 10 years. Investors can obtain callable bonds with a variety of yields, terms and lockout characteristics.

### **How Does Freddie Mac Issue and Redeem Callable Debt?**

Guidelines laid out by the Securities Industry and Financial Markets Association (SIFMA) have improved the method for providing market quotations for European-style callable debt and have also enhanced secondary market transparency. In January 2003, SIFMA issued these guidelines for trading and pricing government-sponsored enterprises’ (GSE) callable debt. The guidelines were most recently updated in May 2004. More information on SIFMA’s pricing model and the guidelines for trading GSE European-style callable debt securities can be found on the SIFMA Web site.<sup>1</sup> In addition, Freddie Mac’s Web site provides some practical information on these guidelines.<sup>2</sup>

Freddie Mac issues callable notes in large, syndicated offerings underwritten by more than one underwriter (syndicated callables) as well as **non-syndicated callable medium-term notes (MTNs)**, with a wide variety of structures with American-, Bermudan- and European-style call options. The variety of structured callable debt products that we have issued as MTNS include:

- Floating to fixed-coupon callables
- Callable capped floaters
- Callable zero coupon notes
- Range accrual notes
- Callable step-up and step-down bonds — these feature coupons that step up or down after call lockout periods, with both pre-determined coupon levels and lockout periods.

Freddie Mac uses two different approaches in deciding what MTN structures to issue:

- The most common method is reverse inquiry, where an underwriter requests a particular callable structure from Freddie Mac, and we provide them the price/yield at which we are willing to issue that particular callable structure. Demand may be determined either by a single investor’s needs or by the underwriter’s expectation of demand from multiple investors.
- At times, we approach dealers with structures that we would like to issue based on our own funding needs. In these situations, we take care to maintain the flexibility to work with the underwriters in accommodating the needs of investors.

### **Freddie Mac Callable Debt Issued and Outstanding**

Since 2001, there has been a dramatic increase in the issuance of GSE callable debt, which has outpaced the issuance of GSE bullet debt. As a result, Freddie Mac callable debt as a percentage of total Freddie Mac debt outstanding has increased. Currently, about half of Freddie Mac’s long-term debt securities outstanding are callable.

### **Call Decision Process**

Freddie Mac evaluates the entire outstanding callable debt portfolio on a daily basis to determine those callable debt issues that we may choose to call. Generally, we will call eligible issues that are currently callable, that are valued at a premium and/or have a “spread” savings (or refinancing benefit) to Freddie Mac from retiring the outstanding debt and issuing new debt. We calculate the refinancing spread benefit by comparing the cost of issuing a new security with the cost of maintaining the outstanding callable issue. Once we have decided to call a particular issue, we notify bondholders at least five business days<sup>3</sup> prior to the call date. We then redeem the issue on the call date at the pre-determined price (typically par) plus interest accrued to the date of redemption. Recently called issues are listed on Freddie Mac’s Web site.<sup>4</sup>

---

“Freddie Mac’s callable debt securities have been purchased by a diversified investor base.”

### **Repurchase Program**

Freddie Mac is committed to promoting the continued liquidity and performance of our outstanding syndicated callable debt securities. Keeping these objectives in mind, we may from time to time repurchase these securities through public transactions. We may also repurchase MTNs in privately negotiated transactions with securities dealers. Generally, Freddie Mac conducts callable debt repurchases for one or more of the following reasons: (1) when the call options on the outstanding issues targeted for repurchase have expired, and they no longer provide this option to Freddie Mac; (2) for asset-liability management or liability restructuring; or (3) to provide investors with added liquidity for our securities. Results of our repurchase operations, as well as a list of MTNs that were privately repurchased, are posted on Freddie Mac’s Web site.<sup>5</sup>

### **Tender Offers**

A tender offer is a particular type of repurchase transaction that Freddie Mac uses to repurchase any or all outstanding amounts of a particular group of chosen targeted securities. Typically, the offer is priced at a fixed spread to a liquid reference security. It differs from our standard repurchase operations in that the offer remains open for a fixed period of time, typically longer than one day. In November 2004, Freddie Mac conducted its first tender offer, which targeted callable securities with expired European-style call options that were trading as illiquid bullet securities. Tender Offers for expired callables are designed to maintain the liquidity of these types of notes. A list of these securities and amounts tendered, as well as the offering documents (Offers to Purchase), can be found on our Web site.<sup>6</sup> Since 2004, Freddie Mac has conducted three additional tender offers for callable debt with expired options and we expect to continue to do so in the future as opportunities arise.

### **Who buys Callable Debt and Why?**

Freddie Mac’s callable debt securities have been purchased by a diversified investor base. Investment managers, commercial banks and central banks are the largest categories of buyers. Other types of investors include insurance companies, pension funds, state and local governments, retail investors and corporate investors. Our Web site provides a breakdown of geographic location and investor type for the primary distribution of our syndicated callables.<sup>7</sup>

### **Callable Debt Provides Potential Yield and Total Return Enhancement**

Callable debt will ordinarily offer investors a higher yield than a non-callable bullet security issued by the same issuer and maturing on the same date. The higher rate on a callable security is compensation for the investors’ exposure to reinvestment risk. Investors face reinvestment risk if interest rates decline and the issue is called away, resulting in a lower interest rate earned on principal returned and reinvested after the call date. Similarly, callable debt investors face the risk that if interest rates rise and the bond is not called and remains outstanding until the maturity date, investors may earn a lower yield than they would earn on the investment of funds in a higher interest-rate market environment. Callable debt is also subject to other risks, which are described in the offering documents for each issue. See “Risk Factors” below. However, in the event Freddie Mac exercises a call option before a bond’s maturity date, investors normally will obtain a higher yield than they would have earned from a Freddie Mac non-callable debt security issued at the same time and maturing on the callable security’s call date.

Figure I provides an example of the yield differences between callable bonds and recently issued (“on-the-run”) bullet debt issued by Freddie Mac for a number of maturity and lockout structures.

**Figure I – Difference between Freddie Mac Callable and On-the-Run Bullet Yield**

Lockout (Years)	Maturity (Years)				
	2	3	5	10	15
Bullet	3.29%	3.37%	3.71%	4.42%	4.60%
0.25	4.20 91 bps	4.39 102 bps	4.82 111 bps	5.53 111 bps	5.80 120 bps
0.5	4.09 80	4.30 92	4.74 103	5.51 108	5.78 118
1	3.75 46	4.00 63	4.49 79	5.34 91	5.69 109
2		3.56 19	4.12 41	5.07 65	5.45 85
3			3.93 22	4.90 48	5.30 70
4				4.79 36	5.19 59
5				4.69 27	5.10 50

Source: Indicative offering levels from the Freddie Mac debt issuance desk as of January 4, 2008.<sup>8</sup>

For many investors, callable debt can offer higher yields than comparable non-callable debt without compromising credit quality. Callable debt can provide investors a vehicle to enhance yields in exchange for taking additional interest-rate risk instead of additional credit risk. Figure II compares Freddie Mac callable debt yields to similar duration investment grade corporate bond yields.

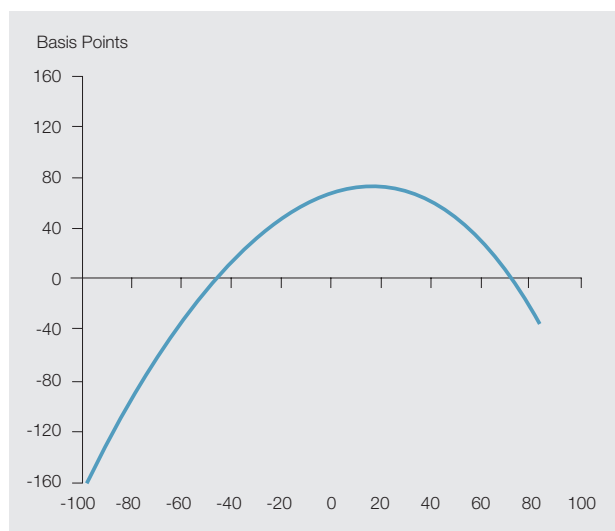
Under certain conditions, callable debt can outperform comparable non-callable debt in both decreasing and increasing rate environments within a range of interest-rate outcomes. Figure III illustrates the total return spread between a recently issued Freddie Mac 10-year security callable in two years relative to a similar duration Treasury bullet security under different market scenarios.

**Figure II – Freddie Mac Callables vs. Corporate Bonds**

Freddie Mac Callable Structure	4 NC 1	5 NC 2	7 NC 4	15 NC 4
Freddie Mac Equivalent Bullet Duration	2	3	5	7
Yield	4.55%	4.42%	4.52%	5.38%
<b>Market Yields</b>				
AAA	4.03	4.08	4.51	4.79
AA	4.04	4.09	4.52	4.80
A+	4.19	4.29	4.73	5.12
A	4.20	4.30	4.73	5.13
A-	4.36	4.47	4.90	5.29
BBB+	4.42	4.55	4.99	5.37
BBB	4.49	4.63	5.15	5.50
BBB-	4.60	4.74	5.27	5.62

Source: Freddie Mac and Bloomberg, as of December 31, 2007.<sup>8</sup>

**Figure III – Total Return Spread Between FHLMC 4.820% Jan 2018 10-Year Non-Call 2-Year and Similar Duration Treasury Note**



Source: RBS Greenwich Capital.

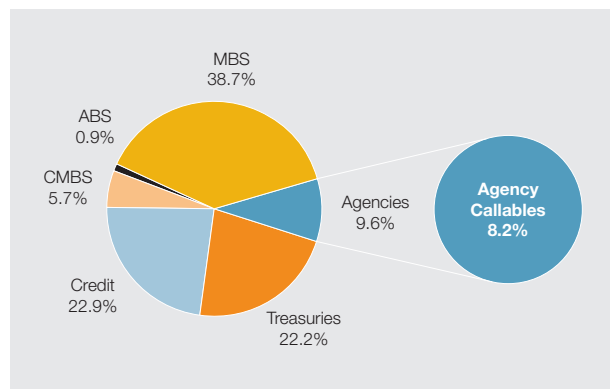
While the yield difference shown here includes different market valuations of the credit risk of the two issues, it helps to demonstrate that investors interested in the most highly rated debt securities can anticipate potentially higher yields from callable securities over non-callable securities in a broad range of interest-rate environments because callable debt returns include a premium for selling the call option. Although both Freddie Mac callable debt securities and Treasury non-callable debt securities are highly rated, investors should be aware of the difference in credit quality between a Freddie Mac callable debt security which is not backed by the government and a Treasury non-callable security that is entirely free of credit risk. Also, investors should be aware that if interest rates decline below or rise above the breakeven range, the total return performance of the callable Freddie Mac security will be worse than that of the non-callable Treasury Note.

### Indexed Investors Buy Our Callable Debt

Fixed-income investors whose performance is benchmarked to public indices tend to invest in GSE callable debt to maintain portfolio market weightings for this sector. Callable debt issued by Freddie Mac and comparable issuers (“agency” debt) accounts for

8.2 percent of the Lehman Aggregate Index (see Figure IV), which translates to roughly 25 percent of the agency component of the overall index. It should be noted that a large portion of agency callable debt is excluded from the Lehman Index because the index’s minimum qualifying size of \$250 million exceeds the issuance size of the majority of callable MTNs.

**Figure IV – Agency Callable Debt as a Percentage of the Lehman Aggregate Index**



Source: Lehman Brothers Global Family of Indices, as of January 8, 2008.

### Callable Debt is an Efficient Vehicle for Investors to Sell Volatility

One way to evaluate an investment in callable debt is to compare it to the purchase of non-callable debt and an accompanying sale of an option to enter into an interest-rate swap (a “swaption”) or an option to buy Treasury Notes, giving investors another way to sell interest-rate volatility. There are several reasons why investors may prefer buying a “callable” security to the latter strategy.

- Logistically, it may be easier for the investor to hold a single security rather than a bullet security and a position in a derivative.
- As the example in Figure V for a 10-year callable with a two-year lockout (10NC2) illustrates, pricing of Freddie Mac’s longer-lockout callables is consistent with pricing in the swaptions market. Transacting in the swaptions market could also result in higher costs for the investor due to wider than anticipated “bid-offer” spreads.
- Investors who use more liquid over-the-counter and exchange-traded Treasury options will have a more limited menu of option expirations to choose from than the callable debt or swaptions market, as the

options markets on Treasury securities does not typically offer long-dated option expirations.

- With Treasury options, the investor would also be exposed to the “basis risk” of different changes in market prices between agency and Treasury yields.
- There may be credit risk considerations for investors relating to transacting in derivatives.
- Synthetic callable investments structured by investing in floating rate assets hedged by an interest-rate swap or swaption (e.g., as in Figure V) may also result in inability to renew positions at an attractive price (“rollover risk”) and basis risk.

**Figure V – Pricing of Freddie Mac’s Longer Lockout Callables are Typically Consistent with Pricing in the Swaptions Market**

Here we compare buying a Freddie Mac 10NC2 European callable versus buying a two-year Freddie Mac bullet and selling the two-year fixed payer option on an eight-year swap.

- 1) Coupon on par-priced new issue Freddie Mac 10NC2 European-style callable..... 4.82%
- 2) Yield on a two-year Freddie Mac Reference Notes bullet... 2.98%

Upfront proceeds from a two-year right-to-pay fixed option into an eight-year swap: 300 basis points

Strike of swaption = 4.82% (set at yield of 10NC2 callable)

Per annum annuity of swaption proceeds amortized over first two years..... 1.57%

**Effective yield of investor for first two years ..... 4.55%**

Calculated by amortizing upfront swaption proceeds over first two years and adding to yield of two-year bullet

*In this example, the investor picks up 27 basis points of yield for the first two years of the transaction from buying the callable relative to the bullet and sold swaption strategy.*

- Investors’ accounting treatment of the option proceeds may be different from what is given here.

Source: Indicative offering levels from Freddie Mac’s debt issuance desk as of January 17, 2008.<sup>8</sup>

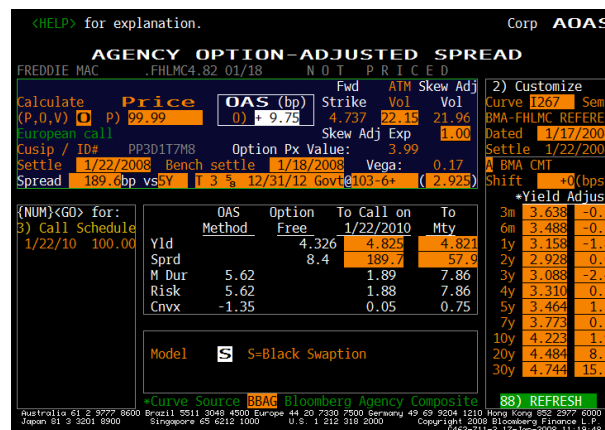
## Public Data and Pricing Tools for our Callable Debt Issues

Freddie Mac’s Web site is a key resource for investors to obtain information about Freddie Mac’s callable debt. The main page for Freddie Mac’s MTNs and other callable notes is [www.FreddieMac.com/debt/html/calldebtmain.html](http://www.FreddieMac.com/debt/html/calldebtmain.html). On our Web site, we provide useful data for investors to learn about our callable debt programs. Our Web site allows investors to

search for callable debt issues by CUSIP or a range of maturity dates or call dates. It also contains listings of our recently issued and recently called debt issues. Information and analytics relating to our callable debt issues is also available on the Bloomberg online system. Online trading systems such as TradeWeb® and BrokerTec enable market participants to monitor prices and transact in our syndicated callables.

A key screen provided by Bloomberg for callable debt pricing is the AOAS. It calculates price, OAS and volatility. AOAS is used for all European-style syndicated callables. This usage is based on SIFMA’s recommendation for pricing GSE European-style callables. Figure VI shows the AOAS screen on Bloomberg.

**Figure VI – AOAS Screen on Bloomberg**



Source: Bloomberg.

The underlying model is the Black lognormal options pricing model for European-style options on forward assets with an adjustment for volatility skew. Volatility skew adjusts for the fact that out-of-the-money (in-the-money) call options are typically priced at a higher (lower) percentage implied volatilities than at-the-money options. The default volatility input is drawn from Tullet Financial’s OTC swaption quotation matrix, and then a skew adjustment is made based on the coupon of the callable relative to an at-the-money strike. The default yield curve input is the on-the-run Freddie Mac Reference Note Yield Curve. The list of securities underlying this curve is available on our Web site.<sup>9</sup> Readers wishing to get a more detailed explanation of the model should consult the SIFMA Guidelines,

a dealer's technical research note or an academic textbook on fixed-income options pricing.

Investors can also use TradeWeb to view prices or to transact in outstanding callable debt issues of \$1 billion in size or greater. TradeWeb introduced the trading of GSE callables to their system in September 2003, and as of February 2008, investors had completed over 47,000 trades of GSE callables totaling more than \$54 billion. This system also implements the SIFMA Guidelines and provides similar analytics to AOAS on Bloomberg. Figure VII gives a snapshot of the TradeWeb AOAS calculator where the user computes these analytics.

**Figure VII – Screenshot of TradeWeb's AOAS Calculator**



The analytics and pricing tools on the Bloomberg AOAS screen, TradeWeb and BrokerTec are used primarily for price discussion among market participants. In addition to the pricing screens, the Bloomberg system provides online analytics that enable investors to project total return performance (using the "TRA" function) as well as other analytics. Some of the large market participants use proprietary valuation tools for determining relative value among securities. Citigroup's Yieldbook® and LehmanLive® are examples of dealer systems that are available to compute callable analytics for participants who do not possess proprietary systems. There are also several private analytic vendors that have callable bond analysis systems that can be used for pricing and analyzing the performance of agency callables. Some of the systems implement the SIFMA standards, while

others are based on proprietary models that these firms provide for the benefit of their clients.

## Risk Factors

Investors should be aware that, as with any investment, there are certain risks involved when buying callable MTNs. These risks are explained in detail in the applicable Offering Circular for our debt securities.<sup>10</sup> These risks are also explained in the Pricing Supplements for each callable security. Investor should not purchase callable debt securities unless they understand the information in the applicable Offering Circular and Pricing Supplement and any documents incorporated by reference in the Offering Circular. We strongly encourage all investors to review these risk factors carefully, to consider their own investment needs and objectives and to consult with registered broker/dealers or an investment advisor qualified to provide advice on the value and risks associated with Freddie Mac callable securities.

## Conclusion

Issuing callable debt serves as an important asset-liability management tool for Freddie Mac and is an integral part of our overall funding program, enabling us to fulfill our mission and expand opportunities for homeownership and affordable rental housing. Issuing our callable MTNs enables investors to obtain smaller sized customized callable debt issues on a reverse inquiry basis corresponding to their varied needs for yield and structure. A plethora of resources concerning our callable debt can be found on our Web site as well as through a variety of online fixed-income services such as Bloomberg, TradeWeb and BrokerTec. Major broker/dealers also have a number of such resources available for the benefit of investors. SIFMA has developed standardized pricing and quotation recommendations for GSE callable debt that are now well incorporated into the market's trading practices for our syndicated callable securities, as well as similar securities issued by our competitors. Investors wishing to participate in a well-supported and liquid sector of the high-grade, U.S. fixed-income market should consider Freddie Mac callable debt securities.

## Endnotes

- 1 [www.sifma.org](http://www.sifma.org)
- 2 [www.FreddieMac.com/debt](http://www.FreddieMac.com/debt)
- 3 Some older outstanding issues require a notification period longer than five days.
- 4 [www.FreddieMac.com/debt/data/cgi-bin/recentlycalled.cgi](http://www.FreddieMac.com/debt/data/cgi-bin/recentlycalled.cgi)
- 5 [www.FreddieMac.com/debt/data/cgi-bin/negotiatedcallablerepurchase.cgi](http://www.FreddieMac.com/debt/data/cgi-bin/negotiatedcallablerepurchase.cgi)
- 6 [www.FreddieMac.com/debt/auctionrepurch/tenderoffers.html](http://www.FreddieMac.com/debt/auctionrepurch/tenderoffers.html)
- 7 [www.FreddieMac.com/debt/html/sactivitymain.html](http://www.FreddieMac.com/debt/html/sactivitymain.html)
- 8 Illustrative information may not be reflective of future performance under any future market conditions. Past performance is not a guarantee of future performance.
- 9 [www.FreddieMac.com/debt/products/referencecurve.html](http://www.FreddieMac.com/debt/products/referencecurve.html)
- 10 [www.FreddieMac.com/debt/html/docsmain.html](http://www.FreddieMac.com/debt/html/docsmain.html)

This product overview is not an offer to sell or a solicitation of an offer to buy any Freddie Mac securities. Offers for any given security are made only through applicable offering circulars and related supplements, which incorporate Freddie Mac's Information Statement and related supplements. This document contains information related to, or referenced in the offering documentation for, certain Freddie Mac debt securities. This information is provided for your general information only, may be current only as of its date and does not constitute an offer to sell or a solicitation of an offer to buy securities. The information does not constitute a sufficient basis for making a decision with respect to the purchase and sale of any security and is directed only at, and is intended for distribution to and use by, qualified persons or entities in jurisdictions where such distribution and use is permitted and would not be contrary to law or regulation. All information regarding or relating to Freddie Mac securities is qualified in its entirety by the relevant offering circular and any related supplements. You should review the relevant offering circular and any related supplements before making a decision with respect to the purchase or sale of any security. In addition, before purchasing any security, please consult your legal and financial advisors for information about and analysis of the security, its risks and its suitability as an investment in your particular circumstances. The examples set forth above are for illustrative purposes only. Opinions contained in this document are those of Freddie Mac currently and are subject to change without notice.

---

“Callable debt serves as an effective way to diversify our investor base while providing a source for managing interest-rate risk and keeping Freddie Mac safe and sound.”

---

**For additional information about Freddie Mac callable debt securities, visit Freddie Mac's Web site at [www.FreddieMac.com/debt](http://www.FreddieMac.com/debt) or contact Investor Inquiry at (800) 336-3672.**

This product overview is not an offer to sell or a solicitation of an offer to buy any Freddie Mac securities. Offers for any given security are made only through applicable offering circulars and related supplements, which incorporate Freddie Mac's Information Statement and related supplements.

