

**Federal Home Loan Bank System**  
**Derivatives Q&A**  
December 2008

**1. What is a derivatives transaction?**

A derivatives transaction is defined by the U.S. General Accounting Office as “a financial contract whose value depends on the values of one or more underlying assets or indices of asset values.” In other words, the fair market value of the financial contract will generally be derived from changes in the values of an underlying asset or index referenced by that contract. For example, the value of a U.S. Treasury bond futures contract will be determined by the price movements of actual Treasury bonds. Interest rate derivatives include interest rate swaps, caps, floors, and futures.

**2. Why do financial institutions use derivatives?**

Many financial institutions use derivatives to manage risk. In a speech on corporate governance on May 8, 2003, Federal Reserve Chairman Alan Greenspan commented on the value of derivatives to individual financial institutions and to the financial system:

“The use of a growing array of derivatives and the related application of more-sophisticated methods for measuring and managing risk are key factors underpinning the enhanced resilience of our largest financial intermediaries. Derivatives have permitted financial risks to be unbundled in ways that have facilitated both their measurement and their management. Because risks can be unbundled, individual financial instruments now can be analyzed in terms of their common underlying risk factors, and risks can be managed on a portfolio basis. Concentrations of risk are more readily identified, and when such concentrations exceed the risk appetites of intermediaries, derivatives can be employed to transfer the underlying risks to other entities.”

“As a result, not only have individual financial institutions become less vulnerable to shocks from underlying risk factors, but also the financial system as a whole has become more resilient. Individual institutions’ portfolios have become better diversified. Furthermore, risk is more widely dispersed, both within the banking system and among other types of intermediaries and institutional investors.”

**3. How do the FHLBanks use derivatives?**

The FHLBanks use interest rate derivatives to reduce identified risks inherent in their normal course of business—lending, investment, and funding activities. The FHLBanks’ regulator, the Federal Housing Finance Agency, has established regulations and policies governing the FHLBanks’ use of derivatives. The Finance Agency regulation prohibits trading in derivatives for short-term profit and any other speculative use of these instruments. The Finance Agency regulations and policies also limit the amount of credit risk allowable from these instruments. In addition, each FHLBank’s board of directors and management has established policies and procedures regarding the use of derivatives by the individual FHLBank.

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The FHLBanks primarily use derivatives to manage their exposure to changes in interest rates. The goal of an interest rate risk management strategy is not necessarily to eliminate interest rate risk but to manage it by setting appropriate limits. One key way each FHLBank manages interest rate risk is to acquire and maintain a portfolio of assets and liabilities, which, together with their associated derivative instruments, are conservatively matched with respect to the expected maturities of the assets and the liabilities. The FHLBanks' duration gaps (i.e., the difference between the expected weighted average maturities of an institution's assets and liabilities) ranged from +2.3 months to -0.8 months at September 30, 2008. This low risk profile reflects each FHLBank's conservative asset-liability mix. The FHLBanks may also use derivative contracts to adjust the effective maturity, repricing frequency, or option characteristics of financial instruments (like advances and outstanding bonds) to achieve risk management objectives. From time to time, the FHLBanks may also act as counterparties to member institutions in the members' own risk management activities.

The most common ways in which the FHLBanks use derivatives are:

- To reduce funding costs by combining a derivative and a consolidated obligation. The combined funding structure can be lower in cost than a comparable consolidated obligation bond.
- To preserve a favorable interest rate spread between the yield of an asset (e.g., an advance) and the cost of the supporting liability (e.g., the consolidated obligation bond used to fund the advance). Without the use of derivatives, this interest rate spread could be reduced or eliminated when the interest rate on the advance and/or the interest rate on the bond change differently or change at different times
- To mitigate the adverse earnings effects of the shortening or extension of certain assets (e.g., advances or mortgage assets) and liabilities
- To protect the value of existing asset or liability positions or of anticipated transactions.

#### **4. Do the FHLBanks all use the same pricing models and assumptions in measuring interest rate risk?**

Each FHLBank is a separately chartered entity, with its own board of directors and management and its own internal modeling system for measuring interest rate risk, including the duration of equity and duration gap. Therefore, the measurements used by the individual FHLBanks may not be directly comparable. However, all of the models are subject to review by the Federal Housing Finance Board and by PricewaterhouseCoopers, the independent public accounting firm that audits the FHLBank System.

The management of each FHLBank bases the underlying assumptions used in its pricing models on a thorough evaluation of current market conditions. The models are validated by obtaining prices for instruments from pricing services and major securities dealers. In addition, the results of the models are subject to PricewaterhouseCoopers' audit procedures as part of their annual audit of each FHLBank and of the combined financial statements prepared by the Office of Finance.

Each FHLBank's board of directors approves risk management policies that limit exposure to various risks and conform to Federal Housing Finance Board regulations and policies.

**5. How much risk do the FHLBanks currently face from derivatives transactions?**

One source of confusion for some observers is that the contractual or notional amount of derivatives is not indicative of the risk of the derivatives transaction. The notional amount serves as a basis for calculating periodic interest payments or cash flows received and paid. At Q3 2008, the total notional amount of the FHLBanks' derivative instruments outstanding was \$1,042 billion. This amount does not reflect the market or credit risks to the FHLBanks associated with their derivatives transactions.

The FHLBanks are subject to credit risk in all derivatives transactions because of the potential nonperformance by the derivative counterparty. The FHLBanks reduce this credit risk by executing derivatives transactions only with highly rated financial institutions. In addition, the legal agreements governing derivatives transactions require a counterparty to deliver high quality collateral to the FHLBank once a specified unsecured net exposure is reached. At September 30, 2008, the net credit exposure of all the FHLBanks in aggregate was \$2.2 billion. However, by requiring delivery of high quality collateral pursuant to the legal agreements, the net unsecured credit exposure of all the FHLBanks in aggregate was just \$300 million. In comparison, the aggregate capital of all the FHLBanks as of that date was over \$57 billion.

The market risk of derivatives can only be measured meaningfully on a portfolio basis, taking into account the entire balance sheet and all off-balance sheet derivatives transactions. The market risk of the derivatives net of the hedged items is included in the measurement of the FHLBanks' duration gaps, which ranged from +2.3 months to -0.8 months at Q3 2008. These low risk profiles reflect each FHLBank's conservative asset-liability mix.

**6. How do the FHLBanks account for their derivatives?**

Each FHLBank accounts for its derivatives in accordance with U.S. generally accepted accounting principles Statement of Financial Accounting Standard 133, "Accounting for Derivative Instruments and Hedging Activities" (SFAS 133), which was adopted January 1, 2001. Under SFAS 133, each FHLBank is required to carry all of its derivative instruments on its balance sheet at fair value. If derivatives meet the hedging criteria (including effectiveness measures) specified in SFAS 133, the underlying hedged instruments may also be carried at fair value, so that some or all of the unrealized gain or loss recognized on the derivative is offset by a corresponding gain or loss on the underlying hedged instrument. The unrealized gain or loss on the ineffective portion of all hedges is recognized in current period earnings. The accounting used by the FHLBanks for typical hedge transactions is summarized as follows:

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<u>Hedge Type</u>	<u>Hedged Item</u>	<u>Recognition</u>
Fair Value	Recognized asset or liability or unrecognized firm commitment	Change in fair values of derivative and hedged item (related to the risk being hedged) are recognized in current period earnings
Cash Flow	Forecasted transaction (including those from a recognized asset or liability with variable cash flows)	Effective portion of fair value of derivative is deferred in other comprehensive income (a component of capital) and recognized in earnings when the related forecasted transaction impacts earnings
Non-FAS 133 Qualifying Hedge	Does not meet FAS 133 hedge criteria (economic hedge of an identified risk)	Fair value of derivative is recognized in current period earnings

#### **7. How can the FHLBanks be confident that they are accounting for their derivatives transactions appropriately?**

The FHLBanks prepared extensively for the implementation of SFAS 133. As the new standards were being developed, the FHLBanks worked closely with the Financial Accounting Standards Board (FASB), reviewing the exposure draft and providing comments, to ensure that the FHLBanks understood how the new requirements would impact their business and affect their accounting policies and procedures. After SFAS 133 was finalized, the FHLBanks continued to work closely with the FASB's Derivatives Implementation Group to seek clarification and address amendments to SFAS 133.

In anticipation of the adoption of SFAS 133, the FHLBanks catalogued each type of derivatives transaction entered into by the FHLBanks. As part of the SFAS 133 implementation process, the FHLBanks consulted with their external auditor, PricewaterhouseCoopers, about the appropriateness of their SFAS 133 accounting policies and interpretations.

Prior to the implementation of SFAS 133, the FHLBanks also established an SFAS 133 Accounting Committee to review the FHLBanks' derivatives transactions and proposed accounting treatment under SFAS 133. PricewaterhouseCoopers also participated in this review process. This committee continues to provide a forum for promoting consistency among the FHLBanks in their accounting treatment of derivatives transactions.

PricewaterhouseCoopers' audits include their work relating to the FHLBanks' use of derivatives and their respective accounting practices for derivatives.

**8. How have recent changes in the accounting guidelines for derivatives affected the financial statements of the FHLBanks?**

Under SFAS 133, an FHLBank is required to recognize certain unrealized losses or gains on derivative positions whether or not the offsetting gains or losses on the related hedged items (the underlying assets or liabilities being hedged) are recognized in a symmetrical manner. As a result, the accounting framework imposed by SFAS 133 may introduce accounting income variability by requiring a one-sided mark-to-market in which only the fair value changes of the derivative are reflected in the Bank's financial statements, while the fair value changes of the hedged item are ignored.

As a result, when interest rates change significantly, an FHLBank's reported GAAP earnings may exhibit considerably more variability than in years prior to the implementation of SFAS 133. While practices differ among different FHLBanks, the FHLBanks generally put primary emphasis on the cost-efficiency and effectiveness of their hedging techniques, while viewing the resulting accounting consequences to be an important but secondary consideration. Partially in response to SFAS 133, many FHLBanks have recently increased their retained earnings, which can provide additional capital to serve as a buffer against the increased volatility of GAAP earnings.

*The FHLBanks have recorded 76 years of innovation and service to the U.S. housing market and currently have more than 8,000 members. Each FHLBank is a separately chartered entity, with its own board of directors and management. The Office of Finance administers the issuance of the FHLBanks consolidated obligations, which are the joint and several obligations of all 12 FHLBanks. The Office of Finance prepares the combined financial reports of the FHLBanks. The assets and liabilities of the 12 FHLBanks cannot be presented on a consolidated basis under US GAAP because the combined assets and liabilities are not under joint management and control. The combined financial report is available at [www.fhlf-of.com](http://www.fhlf-of.com), and the financial reports of the individual FHLBanks are available on their websites, which can be reached from the Office of Finance website at [www.fhlf-of.com/specialinterest/linksframe.html](http://www.fhlf-of.com/specialinterest/linksframe.html). The combined financial report and the individual financial reports contain more information on the FHLBanks' use of derivatives.*

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